SEPTEMBER 24, 1936

FIRST AERO WEEKLY IN THE WORLD

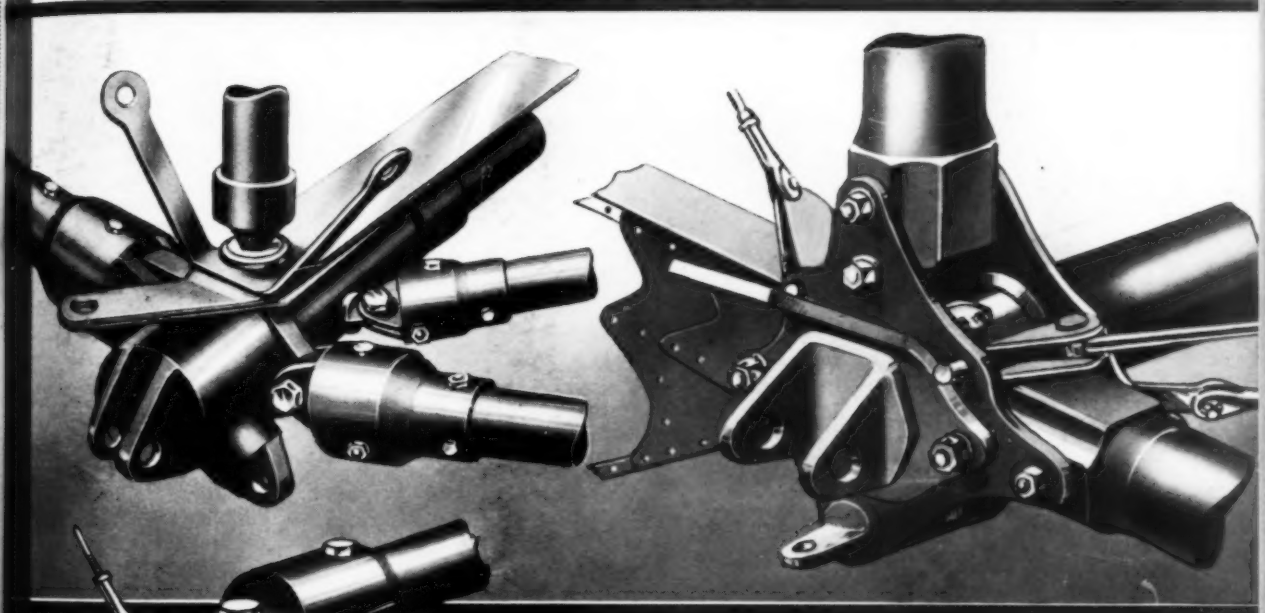
REGD. AT THE G.P.O. AS A NEWSPAPER

FLIGHT

6D.

The AIRCRAFT ENGINEER AND AIRSHIPS

England–Johannesburg



S.80 STAINLESS STEEL MACHINED FITTINGS

IRTH, VICKERS

STAINLESS STEELS LIMITED

YBRITE WORKS SHEFFIELD

G. Wallcousins.

"Bristol" BOMBER-TRANSPORT

THE BRISTOL AEROPLANE CO., LTD.
FILTON, BRISTOL, ENGLAND.

FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

FIRST AERONAUTICAL WEEKLY IN THE WORLD : FOUNDED 1909

Editor C. M. POULSEN

Managing Editor G. GEOFFREY SMITH

Chief Photographer JOHN YOXALL

Editorial, Advertising and Publishing Offices: DORSET HOUSE, STAMFORD STREET, LONDON, S.E.1

Telegrams: Truditur, Sedist, London. Telephone: Waterloo 3333 (50 lines).

HERTFORD ST., COVENTRY.	GUILDHALL BUILDINGS, NAVIGATION ST., BIRMINGHAM, 2.	260, DEANSGATE, MANCHESTER, 3.	26B, RENFIELD ST., GLASGOW C.2.
Telegrams: Autocar, Coventry. Telephone: Coventry 5210.	Telegrams: Autopress, Birmingham. Telephone: Midland 2971.	Telegrams: Iliffe, Manchester. Telephone: Blackfriars 4412.	Telegrams: Iliffe, Glasgow. Telephone: Central 4857.

SUBSCRIPTION RATES: Home and Canada: Year, £1 13 0. 6 months, 16s. 6d. 3 months, 8s. 6d. Other Countries: Year, £1 15 0. 6 months, 17s. 6d. 3 months, 8s. 9d.

No. 1448. Vol. XXX. SEPTEMBER 24, 1933. Thursdays, Price 6d.

A Competitor per £1,000?

WHEN it was first announced, early in June of this year, that Mr. I. W. Schlesinger had offered prizes totalling £10,000 for an air race from England to the Rand it was realised at once that the time was much too short to enable any firm to produce aircraft specially for the race. On the other hand, the formula chosen for calculating handicap speeds was such that it seemed to give existing aeroplanes a very good chance. It is, therefore, somewhat surprising, and not a little disappointing, that no more than fourteen aeroplanes were entered for the race, one of which has already been withdrawn, while another has been damaged, and two or three more now seem to be unlikely starters, so that when the competing machines are collected at Portsmouth Airport to-day for official inspection it is quite probable that the number will be found to have dwindled to a mere ten or even fewer.

It is rather sad to reflect that even with prize money totalling the really munificent sum of £10,000 it is not possible to scrape together in this year of grace 1936 more than half a score of aeroplanes to race for such substantial prizes. This is the more regrettable because the course starts and finishes in the British Empire, and a large percentage of the route lies over British territory, while the race itself is confined to British machines, engines and pilots.

One is at a loss to account for this lack of interest in an air race which should have produced at least thirty or forty entries. The formula chosen for calculating handicap speeds cannot well be blamed. It under-estimates speeds in the most generous fashion imaginable, and seems to do so with splendid impartiality whether applied to small and fast aeroplanes or to larger and slower ones. That should have been sufficient "bait" to lure large numbers of entrants.

Some idea of the stone-hard logic of those who evolved the formula may be gathered from the fact that the first term in the formula assumes that if the payload is nil the gross weight also becomes nil, and that the smaller the gross weight the slower the machine becomes. One redeeming feature *is* introduced by this muddle-headed formula in that it tends to discourage loading a machine up to its full C. of A. weight, but it is difficult to see any justification based on physical facts for the particular juxtaposition of gross weight and payload adopted.

Certainly the Royal Aero Club formula has the merits of simplicity, and doubtless this fact appealed strongly to the Racing Committee, but it would not be very difficult to evolve a formula equally simple and at the same time more in line with physical facts.

Formula Racing

The use of a formula is, in itself, to be commended. If a potential entrant knows that his machine is to be handicapped "on form" he is much more likely to argue that it is no use entering, as so much depends upon the handicapper's opinion of what his aircraft should be able to do in the way of speed. A formula does give the opportunity to fake things to do as well as possible under the given regulations, and thus should tend to produce a good entry.

One often hears the argument used that manufacturers are so busy on Government work that they cannot spare the time for getting machines ready for racing. That, however, does not altogether explain the paucity of entries. There are in existence in this country at the present time quite a large number of privately owned aeroplanes, and if the original manufacturers cannot find time to carry out the work of modifications, installation of extra tanks and instruments and so forth, there are plenty of firms whose normal business is overhaul and repair work, and who would be quite capable of doing anything necessary to make the machines raceworthy.

The Empire Scheme

AT last, after many reports and contradictions, Australia has agreed in principle to co-operate in the Empire scheme of air mails. The details of her terms have not been published, but her acceptance of the scheme must mean that she agrees to the use of flying boats from Singapore to Darwin and round the coast to Sydney, in place of the present arrangement of flying the mails by landplane from Darwin to the interior of Australia. Probably it also means that the Australian Government will no longer be responsible for subsidising the service from Singapore, and to that extent the Commonwealth revenues will gain by the new plan. There never was any fundamental reason why Australia should regard Singapore as her particular concern, but as she wished to shoulder that financial responsibility her wishes were gratified under the old arrangement.

The Financial Side

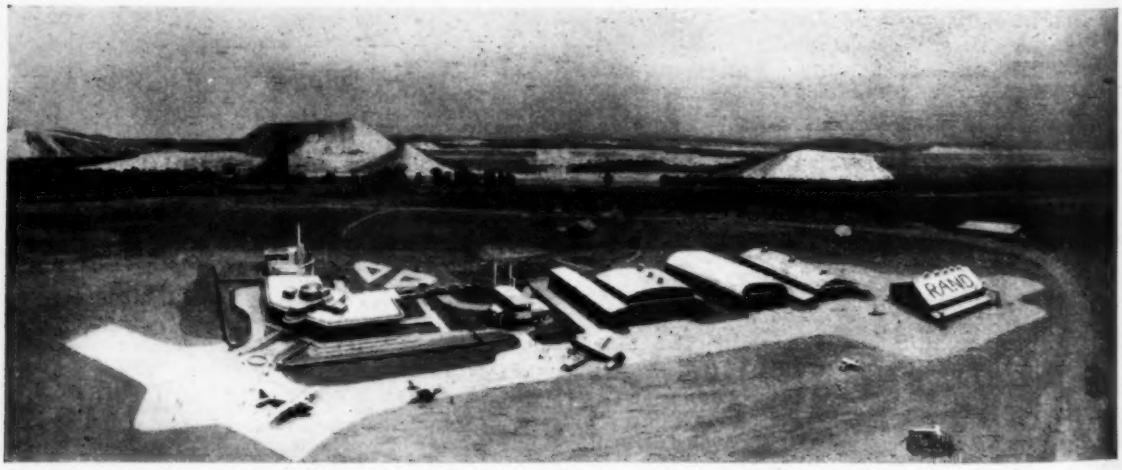
Despite this probable saving to Australian revenues, it is on the financial side that Australia has found it difficult to agree to the Empire scheme of air mails. The scheme contemplates an extension from Sydney to New Zealand, and that means that, if the whole scheme is to be worked economically, flying boats must go right through with no "break of gauge." For obvious internal reasons the Commonwealth must see that the old Qantas service through Northern Queensland is not abandoned and that implies a domestic subsidy in addition to whatever contribution Australia may make to the Empire scheme. But the main difficulty concerns the mail surcharge. The scheme proposed by Great Britain abolishes air mail surcharge, and offers carriage by air at a flat Empire rate of 1½d. per half ounce. The Commonwealth says that if she sends all her letters westward, to Malaya, India, and the United Kingdom, at that flat rate she will lose heavily, and the total result will be a cost to Australia of at least £240,000 per annum, apparently without reckoning any subsidy to the Qantas service. Surcharge is still a matter for discussion.

Sympathy must certainly be felt for the Australian point of view, especially as the Commonwealth is not a wealthy Government—though its people are less heavily taxed than those of the United Kingdom. On the other hand, the Empire scheme is a very big conception which must certainly bring advantages—very great advantages—in the long run to all the participating British lands. This scheme depends for success, at least for rapid success, on through operation and on the abolition of surcharge. If all first-class mail matter goes by air as a matter of course, loads can be predicted and services can be planned ahead on the basis of that knowledge. Once a surcharge is made, the Post Offices cannot calculate the mail load, for the decision to send letters by air will rest with the writers and not with the authorities. Therefore everyone must hope that Australia will take the long view, and will find herself able to fall in with this great scheme.

Medical Tests

THERE has been some correspondence in the daily papers of late, in which Air Commodore P. F. M. Fellowes has joined, suggesting that the rules for admission into the R.A.F. as a pilot are too severe. One writer proposed that the age limit should be raised; others said that the medical tests require too high a standard of fitness. The gallant Air Commodore and at least one other writer hold that physical perfection is less necessary for an Air Force pilot than it is for soldiers and sailors, "with their greater need for endurance under hardship."

It is always easy to back up a plea of that sort by citing exceptional cases of short-sighted pilots (such as Major Mannock, V.C., and Capt. F. T. Courtney), or men with other disabilities who have been outstandingly good pilots. But, with all due deference to the proverb, exceptions do *not* prove a rule. On the other hand, opinions about flying qualifications change with experience. In 1918 a man of thirty was generally considered too old for flying. We may yet find it wise to relax the rules, but we must not forget the strains imposed by the speed of modern aeroplanes. At any rate, while the recruiting of pilots remains as satisfactory as it is, there would be no wisdom in taking anything but the best.



THE FINISH: The Rand Airport, Germiston, Johannesburg, the goal of competitors in next week's Schlesinger African Air Race. The finish was to have been at Baragwanath Aerodrome, Johannesburg, but a last-moment change has been made. This *Flight* photograph is of an Imperial Airways' diorama of the airport.

The Outlook

A Running Commentary on Air Topics

Blazing the Trail

WHEN the modern generation contemplates, without any particular wonder, a race of more than 6,000 miles from Portsmouth to Johannesburg, it may usefully be reminded that no more than sixteen years ago the first Air Ministry announcement was made about the completion of the survey and the preparation of aerodromes. To-day not only is it regarded as commonplace to race over that route, but Imperial Airways operate it commercially with great regularity, carrying passengers, goods, and mails.

What a difference there is between the indifferent landing grounds which existed in 1920, and what improvement in the aeroplanes! The first to attempt a flight along the newly opened London-Capetown route in 1920 were Capts. Broome and Cockerell, then Vickers' test pilots, in a Vickers Vimy with two Rolls-Royce Eagle engines of 360 h.p. each. The flight was organised by *The Times*, and terminated with a crash when taking off from Tabora, one engine failing just as the machine was becoming airborne.

Another Vickers Vimy, *Silver Queen*, piloted by Pierre van Ryneveld and Capt. Brand, both South Africans, had even less luck. Starting from Brooklands on February 4, the first machine got as far as Wadi Halfa, where it was wrecked. The crew returned to Cairo, where the same engines were fitted into *Silver Queen II*, and a start was made on February 22. By March 6 the machine had got as far as Bulawayo, but crashed near there on starting for Pretoria. Another aeroplane was sent up from the Cape, and on this Ryneveld and Brand reached Capetown on March 20.

Since those days flights almost without number have been made over the African route. It is due to those venturesome spirits, from Broome and Cockerell, Ryneveld and Brand, to Mrs. Mollison, that the London-Cape record has gradually been reduced from about seven weeks to under four days. Next week some of the competitors hope to reach Johannesburg in not much more than thirty hours!

Germiston, Not Baragwanath

READERS may be puzzled by the mention in "Tommy" Rose's article (pages 316*a*-316*d*) of Baragwanath Aerodrome, Johannesburg, as the finishing point of the race, and the announcement elsewhere that the finishing line will be at Germiston. The decision to change over was announced by the Royal Aero Club last Monday, after the section of *Flight* containing Flt. Lt. Rose's article had gone to press. The change of location was made by the R.Ae.C. on the advice of its local representative. Both aerodromes are good, but the floodlighting at Germiston is rather better than that at Baragwanath, and as machines will probably be arriving at night the Club very wisely decided, in the interests of all concerned, to change over to Germiston.

It should be realised that competitors will be arriving at the end of an extremely strenuous flight, tired and in no shape to struggle with night-landing problems, and the club has undoubtedly acted wisely in giving them the benefit of the very best lighting equipment available.

The Butchers' Arithmetic

EVERY student of the classics will remember how the Butcher in Lewis Carroll's *Hunting of the Snark* did a sum for the Beaver, and how he lamented: "'Two added to one, if it could but be done,' he sighed, 'on one's fingers and thumbs,' recollecting with tears how in earlier years he had taken no pains with his sums."

The particular person who wrote the chapter on the fleet of Imperial Airways in the *Report on the Progress of Civil Aviation, 1935*, seems to have a mind akin to that of the aforesaid famous Butcher. Some twelve months or more ago Imperial Airways announced that they had placed an order for twenty-nine flying boats. This was copied in all the newspapers. The writer in the *Report* says that "orders were placed by the Company for twenty-seven new flying boats," and most daily papers have dutifully copied this figure. Then the writer proceeds to make the figures tally. To the given figure of twenty-seven he adds one boat for the Bermuda-New York service. Then he adds the lower component of the Mayo composite craft. Then from the original twenty-seven he subtracts two for transatlantic services. Presumably the answer is then Lemon.

The Butcher, in truth, made a better job of it, though he worked on the same system:—

> *"Taking three as a number to reason about, a convenient figure to state,*
> *You add seven and ten, and then multiply out by one thousand diminished by eight.*
> *The result you proceed to divide, as you see, by nine hundred and ninety and two,*
> *Then subtract seventeen, and the answer must be exactly and perfectly true."*

Let us try to disentangle the *Report's* figures and tell the world what the Imperial Airways order really was. The sum is as follows:—

Empire-class boats	25
Atlantic class	2
Bermuda class	1
Mayo component	1
	29

Incidentally, the basic features of twenty-eight of the twenty-nine hulls are the same. The difference is only in the equipment for the various duties which the different classes will have to perform.

Effective "Mediums"

FOUR companies have received orders from the Air Ministry for medium bomber aircraft for the equipment of R.A.F. squadrons, signifying the extreme value attached officially to this class of machine. The advent of the type may conceivably bring about a radical change in the policy of equipment, for the adaptability and performance of the medium bomber, as typified by the examples shown in public at the R.A.F. and S.B.A.C. displays this year, is such that it may lead air staffs to "go nap" on that class of machine, while regarding the light and heavy types as indispensable specialists.

After the Overstrand, the next medium bomber to be accepted by the Service was the Vickers Wellesly, originally designed to a general purpose specification but, thanks to ingenuity of design, imbued with such qualities as to put it in the medium bomber class. Then came the Fairey Battle, likewise a single-engined model, and the twin-Mercury Blenheim. Both these machines were smaller and less powerful than two new "mediums" presented at the R.A.F. and S.B.A.C. displays. Products of the Handley Page and Vickers concerns, these were Pegasus-engined machines of advanced design and endowed with some desirable offensive and defensive features.

NEXT WEEK'S BIG RACE

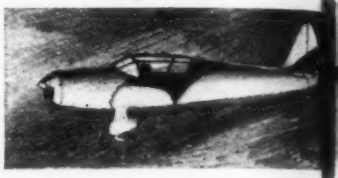
Mr. Schlesinger's Generosity : Regulations Simply Explained : Competing Machines and the Handicap Formula

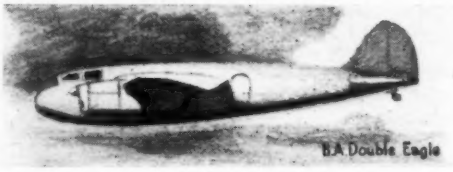
THE first announcement of the offer by Mr. I. W. Schlesinger, the South African industrialist, of prizes totalling £10,000 for an air race from England to Johannesburg was made by the Royal Aero Club of Great Britain early in June this year, when the club undertook the organisation of the event. It was quite obvious that if the race were to start, as was originally intended, on September 15, the day on which the Johannesburg Empire Exhibition opened, there would be no time for any firm to build machines specially for it. That being so, the Royal Aero Club was faced with the problem of drafting a set of regulations which should be fair to a wide range of British aircraft types and at the same time should encourage fast aeroplanes.

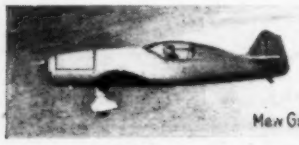
In a remarkably short time, considering the difficulties, the racing committee of the Club produced a set of regulations and a formula, and it was decided to divide the race into two classes, to be flown concurrently, one to be a handicap race and the other a pure speed race. Actually, it would, perhaps, be more correct to explain the regulations by saying that the race is a handicap race, with a very substantial prize for fastest time.

After some discussion it was decided to divide Mr. Schlesinger's £10,000 into £4,000 for the entrant of the machine making fastest time and prizes of £3,000, £1,500, £1,000 and £500 for the handicap. No entrant is eligible for prizes in both the speed and the handicap, and a "double" will have to renounce one.

Some weeks ago it was announced that, in order to give intending competitors a little more time, and to fit in with a full moon, the starting date would be postponed until September 29. Still more recently it was decided to make Portsmouth the starting point instead of Hatfield, which was at one time regarded as the most likely and would have made the contest a "city-to-city" race—London to Johannesburg.



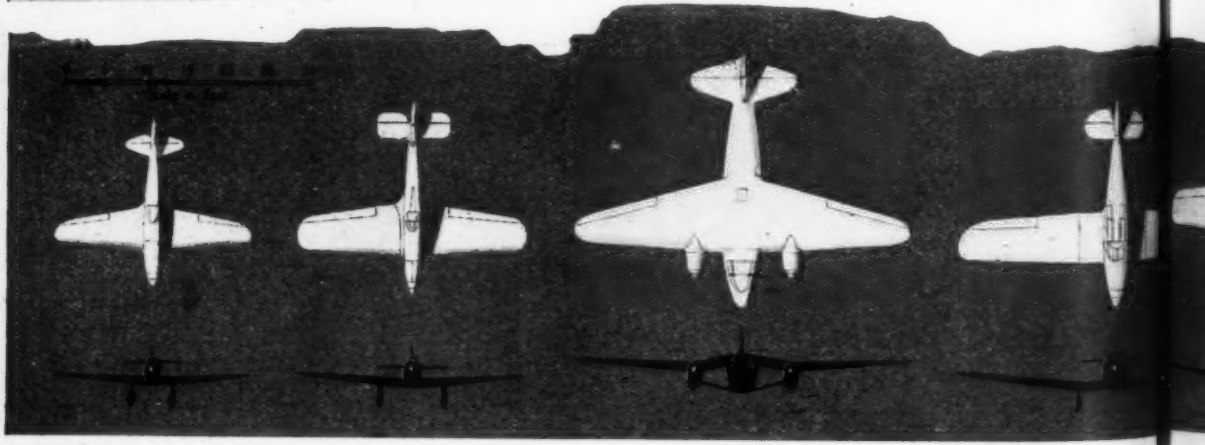




Though, for purposes of clarity, these side elevations are to a slightly larger scale than the plan views below, they are in correct proportion to one another.

At 6.15 a.m. on Tuesday of next week, the first machine will be flagged away on its journey of more than 6,000 miles, and the others will be started off at intervals of one minute. The handicap spacing will be adjusted at Cairo, where all competing machines must land.

Concerning the route to be followed, the pilots will be given a free hand with the exception that they must pass over the Belgrade aerodrome low enough to be identified, this being a turning point, and landing at Cairo is compulsory. After Cairo the pilots will please themselves and will choose their own stages and points for refuelling. Imperial Airways, Ltd., have offered all



PERCIVAL MEW GULL
(Nos. 1, 2)
Gipsy Six Mk. II.

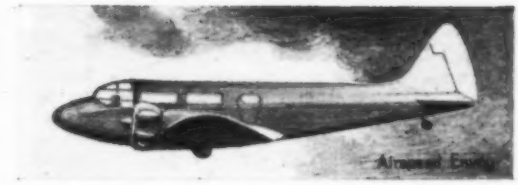
MILES SPARROW HAWK
(No. 3)
Gipsy Major

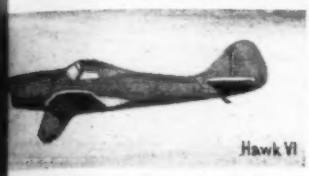
B.A. DOUBLE EAGLE
(No. 4)
Two Gipsy Six

PERCIVAL VEGA G
(Nos. 5, 6, 7, 1
Gipsy Six Mk. II

possible assistance, and are arranging to illuminate their aerodromes down through Africa at night during the race period. The nature of the route is described in a special article by Flt. Lt. Tommy Rose in this issue.

Time spent at aerodromes while refuelling or repairing possible damage will be counted as flying time, so that competitors will naturally reduce the number of landings to a minimum. This will give the machines with a very long range a certain advantage, and may serve to even up matters between a very fast machine of fairly short range and a slightly slower machine with longer range. Small differences in range will not help much, owing to the spacing of available refuelling stations in Africa, since obviously an excess of range which is not quite sufficient to enable the machine to reach the next aerodrome is of no practical value except as an extra safeguard in case of strong head winds.





The formula selected as a basis for the handicap is almost identical with that used in the England-Australia race in 1934. It is very simple and takes into consideration a very few, easily-determined factors only. These are the gross weight of the machine, the pay load (if any), the wing area and the horsepower of the engines. Expressed algebraically the formula reads:—

$$V = 150\left(1 - \frac{0.5L}{W - L}\right) \times \left(\frac{P}{A}\right)^{\frac{1}{3}}$$

in which V is the speed, in m.p.h., which the machine will be assumed capable of, for handicap purposes, L is the pay load in lb., W the gross weight in lb., P the normal horsepower of the engine(s), and A the wing area in sq. ft., including ailerons but excluding wing fillets.

The England-Australia handicap formula was identical except that the figure in front of the first parenthesis was 140 instead of 150, and 0.2 L was used for the pay load factor instead of the 0.5 L used in the Schlesinger race.

Worked-out examples of known aeroplanes indicate that the formula under-estimates the speed very materially, in spite of the increase of the co-efficient from 140 to 150, but as this applies fairly equally to all types, the actual effect may be smaller than one would expect.

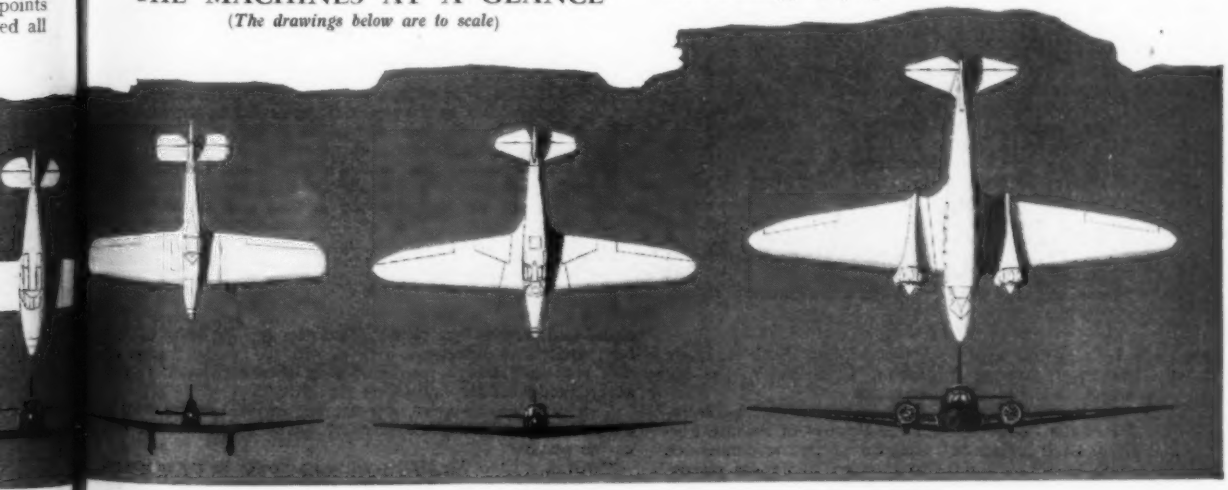
To follow the working of the formula, perhaps the simplest case is that in which the horsepower is numerically equal to the wing area and the pay load is nil. In that case the handicap speed becomes simply 150, since the fraction in the first parenthesis becomes nil, leaving 150 to be multiplied by 1. The "horse power per sq. ft." becomes 1^3, or 1, and the speed to be used in handicapping that particular machine will be 150 m.p.h.

If one examines tabulated particulars of a large number of aeroplanes, it is found that in exceptional cases only does the value of $\frac{P}{A}$ differ very greatly from 1. A machine in which the horse power is several times greater numerically than the wing area would be likely to be an out-and-out racing freak, while one in which the wing area is *very much* greater, numerically, than the horse power might reasonably be assumed to be a slow aeroplane. This part of the formula appears rational enough, and when applied to existing aeroplanes there is, in any case, nothing the designer can do about it, the ratio being fixed for any given machine.

How comparatively small effect the "horse power per square foot" has on formula speed may be gathered from the fact that when $\frac{P}{A}$ equals 3, the resulting multiplying factor becomes 1.442; when $\frac{P}{A}$ equals 1 the factor becomes 1; and when $\frac{P}{A}$ is as low as 0.60 the factor is still as high as 0.843. This part of the formula does not, therefore, play a very important part in evaluating formula speed for handicapping purposes.

THE MACHINES AT A GLANCE

(The drawings below are to scale)



MILES HAWK SIX	B.A. EAGLE	AIRSPEED ENVOY
(No. 8)	(No. 10)	(No. 13)
Gipsy Six R	Gipsy Major	Two Cheetah IX

If the designer of a competing machine has little power over the second part of the formula, the entrant has a wide choice of variables in the first part of the formula. In view of the fact that the fraction in the first parenthesis has to be subtracted from 1, it will obviously be to the competitor's advantage to endeavour to make the fraction as large as possible in order to get a small factor wherewith to multiply 150. This can be done by carrying as large a pay load as possible, keeping the gross weight the same. If, however, that is done, it is obvious that pay load can only be increased at the expense of fuel, so that in getting a large pay load the range is reduced, more stops for refuelling will be necessary, and thus over-all speed will be reduced.

Another way in which the fraction can be made large is by reducing the gross weight; in other words, by refraining from loading the machine to its C. of A. capacity. Obviously this part of the formula is not very rational, since a reduced gross weight would increase and not decrease the speed of the aeroplane.

Ultimately, the choice is likely to be made, not so much according to the effect of the formula on the handicap speed, but on a basis of sufficient fuel to cover the longest practicable stage between possible refuelling bases along the route, carrying what pay load is left over after this quantity of fuel has been taken on board.

Perhaps it may be of interest to give numerical examples of the way the formula works on a hypothetical aeroplane. If it is assumed that the machine has an engine of 200 b.h.p. and a wing area of 184 sq. ft., $\left(\frac{P}{A}\right)^{\frac{1}{3}}$ will equal 1.03, and the second part of the formula would give a handicap speed of $150 \times 1.03 = 154.5$ m.p.h. if not affected by the gross weight and pay load part of the formula.

Assuming that the hypothetical aeroplane is, with tankage for normal ranges, capable of carrying up to three passengers, and that the weight of a passenger is taken as 200 lb. Such an aeroplane, with the power and wing area assumed above, would probably weigh some 1,700lb. empty and would have a gross weight of, let us say, 2,800 lb. If one passenger were carried, the rest of the available lift being devoted to fuel, the figures in the first parenthesis of the formula would work out at 0.9615, and multiplying this by 150 would give 144 m.p.h., which, multiplied by 1.03, gives a handicap speed of 148.5 m.p.h.

Similarly, if two passengers were carried, the handicap speed would be 142 m.p.h., and if three passengers were carried, the handicap speed would come down to 134 m.p.h. A clean aeroplane with an engine of 200 h.p., a wing area of 184 sq. ft., and weighing 2,800 lb., tallies fairly closely with the standard Percival Vega Gull, which has a top speed of about 170 m.p.h. Thus, as already mentioned, it is seen that the handicap formula tends to underestimate the speed of machines considerably. As the function of the formula is to estimate relative rather than actual speeds, the effect on the result may not be as great as these figure would seem to indicate.

"Beste Geluk!"

THE advantages of bringing the distant parts of the British Empire closer together were emphasised at a dinner given last Thursday at the Savoy Hotel, London, to Major A. M. Miller, Capt. S. S. Halse, and Mr. Victor Smith, three South Africans who are taking part in the England-Johannesburg Race next week, by Mr. Henry S. Horne and Flt. Lt. Tommy Rose. The speakers included Mr. Horne, Flt. Lt. Rose, Capt. Miller, Sir Malcolm Campbell, Mr. G. W. Klerck and Lord Decies.

Running as a *leit motif* through all the speeches was the good fellowship that exists between flying folk of the Union and those of the old country. Flt. Lt. Tommy Rose expressed the general feeling of the 200 or so guests when he said that if, next week, Johannesburg was proposing the health of one of the South African pilots as winner of the race, no one would be more pleased than the British pilots.

The Penalty of Fame

NUMEROUS examples can be found of the name of some proprietary article having become so familiar that it is used to denote a general class of goods. The word "Kodak" is a case in point. It is frequently used to describe any make of amateur camera, and it was not without reason that the original firm used to advertise some years ago "If it isn't an Eastman, it isn t a Kodak." Similarly, the word "Tabloid" is often used merely to denote something condensed into a very small compass, and not necessarily a product of Burroughs Wellcome. Doubtless the same psychological effect was at work when, in *Flight* of September 10, a contributor used, in his summaries of recent Patent Specifications, the word "Autogiro" to denote any rotating-wing aircraft. The name "Autogiro" is, of course, the trade mark of the Cierva Autogiro Company, Ltd., and should not, therefore, be used in connection with rotating-wing aircraft designed by others.

Sunday Flying Protests

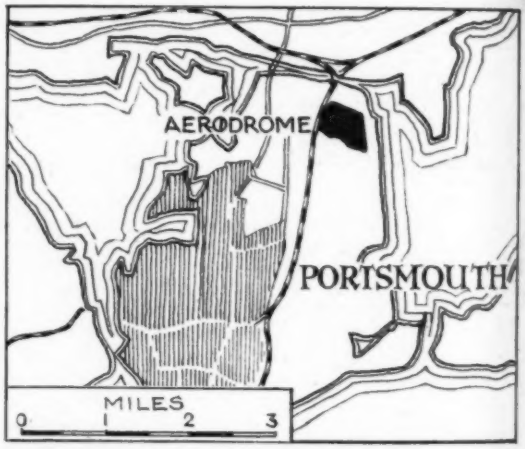
IN reply to a protest against Sunday flying displays, made by the Presbytery of Hamilton, Lanarkshire, the Air Ministry has made the following statement:—

"The question of Sunday flying was remitted by the Secretary for Air to the Committee for the Control of Private Flying and Other Civil Aviation. That Committee recommended that it would be inappropriate to attempt to impose restrictions on Sunday flying under the Air Navigation Act, 1920, and that such action as is desirable should be taken under Sunday observance ordinances.

"The Air Council has accepted this recommendation in principle, and it therefore follows that the Air Ministry will not be prepared to intervene with regard to the holding of air displays on Sundays, provided that these are conducted in accordance with air navigation regulations.

"In practice, however, the Air Ministry is most careful to discourage any kind of Sunday flying which will interfere with divine service.

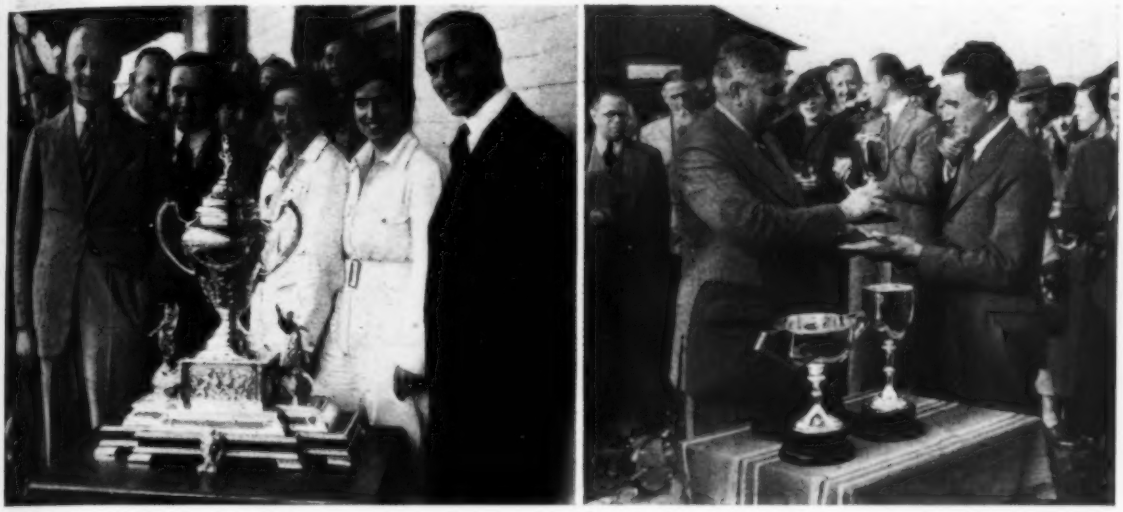
"Although the Air Ministry has no power to refuse licences for the use of aerodromes because they would be used for flying on Sundays, influence is brought to bear on the promotors of air displays to refrain from flying near places of worship during the times of services."



THE START: The airport of Portsmouth is bounded on the north and east by Langstone Harbour and on the west by the Southern Railway line. From the Cosham road entry to Portsmouth the motorist has to proceed well in towards the City before turning left and doubling back towards the airport. The public will be admitted on Sunday, Monday and Tuesday, the race starting at 6.15 a.m. on the last-named day. There will be a shilling enclosure and a park, at the same price, for cars and motor cycles. For five shillings a ticket can be obtained admitting to a special reserved enclosure on each of the three days.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS



TO THE VICTORS . . . : Prizegiving at two week-end events. On the left are the Hereford race leaders with the Mayor, Ald. P. Gwynne-James (right), and the truly enormous trophy. On the right, Mr. W. Lindsay Everard, M.P., makes presentation to Mr. Waight (T.K.2), the winner of the Heston-Cardiff race. (*Flight* photographs). **Reports appear on pages 317 and 318.**

A LAST-MOMENT change in the Johannesburg race arrangements transfers the finishing point from Baragwanath Aerodrome to the Rand Airport, Germiston.

What is thought to be Australia's first *Puss* flight was made recently by W. S. Maddocks, of the Royal Aero Club of South Australia, on a J.A.P.-engined machine built by Mr. Keith Litchfield.

Richman and Merrill, the story of whose west-east trans-Atlantic crossing was told in *Flight* of September 10, made the return trip last week in 17hr. 45min., landing at Musgrave Harbour, 150 miles from St. John's, Newfoundland.

According to newspaper reports there was some difference of opinion on the question of dumping some of the fuel load when about 200 miles from Newfoundland. Merrill is reported to have said that the machine originally had "enough gas to get to Georgia," but Richman insisted on jettisoning some of the petrol when things began to look dangerous.

Twenty-five Years Ago

(*From "Flight" of September 23, 1911.*)

"At the conclusion of the French manœuvres last year the military authorities of that country recognised that the era of fighting aircraft had arrived. Our own people laughed the idea to scorn . . . in the main our officers have learnt at their own expense and on their own machines, whereas it is official progress we want to see."

The first of the eight Douglas D.C.3s ordered from the Fokker company by K.L.M. should be delivered during this month.

Internal modifications permitted the Zeppelin *Hindenburg* to leave for the U.S.A. last Thursday with 72 passengers. The previous maximum was 50.

Gar Wood, speedboat and aviation enthusiast, has taken delivery of a special Fairchild "Baby Clipper" amphibian with a Wright Cyclone and Hamilton constant-speed airscrew. Cruising at 153 m.p.h. the machine has a range of 1,400 miles.

A new all-metal single-seater fighter monoplane developed jointly by the Chance Vought and Northrop companies has been released for export by the U.S.

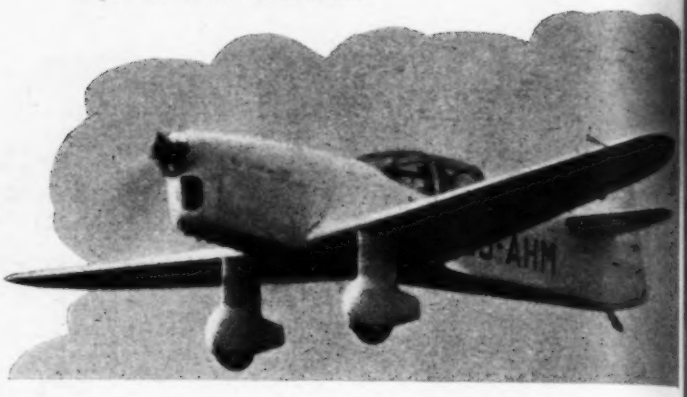
The Duke of Kent will attend the annual reception of the Guild of Air Pilots to be held at the Mansion House on Monday, October 12.

The Airspeed Company, whose name was unfortunately omitted from the list of exhibitors at the Johannesburg exhibition published in *Flight* last week, will be showing models of the A.S.14, convertible Envoy, Envoy fuselage and conversion pieces and the civil Envoy's fuselage.

SLOTS AND FLAPS are not the prerogative of modern aircraft design ; so much is clearly demonstrated by this photograph of that singularly unpleasant bird, the vulture.

THE FIELD

Capt. Miller's Mew Gull in action.



Some Notes on the Machines which will Race to Johannesburg Next Week

(Illustrated mainly with *Flight* photographs and drawings)

TECHNICALLY the Schlesinger Race has brought forth nothing vitally new in aircraft design, what little novelty there is being in engines and airscrews. But the machines do represent much of what is best in modern British practice in the construction of light civil aircraft, and for that, at least, we may be thankful, though four manufacturers only are represented. Three of these—Percival Aircraft, Ltd., Phillips and Powis Aircraft, Ltd., and the British Aircraft Manufacturing Co., Ltd.—have built some of the most successful small civil types of recent years, and, though themselves keen competitors in the light aircraft market, stand out from foreign rivals because their machines possess such outstanding performance and load-carrying ability for a modest power expenditure. The fourth, Airspeed, Ltd., has devoted its attention to somewhat larger aircraft. Its Envoy monoplane, the most popular Airspeed model at the moment, is one of the fastest transports in this country, and, for that matter, in the world. It is the only machine in the race fitted with radial engines, the remaining entries being Gipsy-powered.

The entries will hereafter be dealt with under the headings of their various manufacturers.

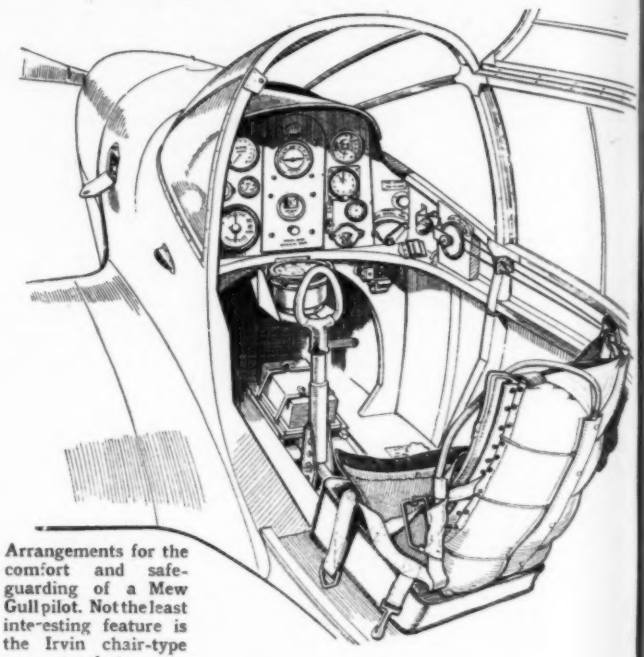
PERCIVAL

Mew Gull **Nos. 1 and 2**

If there is one type of Schlesinger racing machine which has captured the popular imagination more than another it is surely the Mew Gull, smallest and fastest of them all, and dear to the national heart as the entry of H.R.H. the Duke of Kent in King's Cup Races for three years past.

The Mew Gulls in the Schlesinger Race represent the latest model produced, having a 24ft. 9in span and mounting the new 205 h.p. De Havilland Series II Gipsy Six engine driving a D.H. variable-pitch airscrew.

Essentially, and except for a few minor items of detail, the two machines of this type are very similar, having a plywood-covered wooden fuselage and wing Flaps, of course, are necessary as the wing loading at the new all-up weight of 2,140 lb. approaches 30 lb./sq ft. and the design



Arrangements for the comfort and safeguarding of a Mew Gull pilot. Not the least interesting feature is the Irvin chair-type parachute.

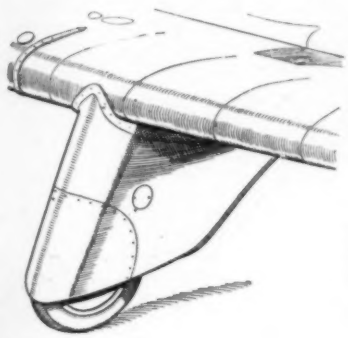
Halse's Mew Gull is on the left, with Campbell Black's tragic *Miss Liverpool* on the right. The absence of spinners is unfortunate from aesthetic and aerodynamic viewpoints.

C. W. A. Scott's Vega Gull (above) has a Gipsy Six II and variable-pitch airscrew. On the right is Victor Smith with his new Miles Sparrow Hawk (Gipsy Major H.C.)

is exceptionally clean. The undercarriage is a fixed cantilever type with "trousers" over the compression legs and "spats" for the wheels.

Normally the Mew Gull is fitted with fuel tanks for 41 gallons, two of these being installed in the wings and a third in the fuselage, but for the Schlesinger Race there are two additional tanks, one for 28 gallons in the fuselage, and another of 10 gallons capacity in the luggage locker. It is expected that the range will be of the order of 1,500 miles. The oil tank holds five gallons.

Official performance figures for the new version have not yet been released, but at an altitude which lies somewhere between 7,000 and 10,000 ft. the "Mews" should cruise at over 220 m.p.h. The actual figure will depend to some extent on the setting of the airscrews, for a small margin of adjustment is



(Right): An interior view of Scott and Guthrie's Vega Gull. Note the airscrew pitch-changing lever on the left of the near-side control column.

(Left): A trouser leg on Clouston's Speed Six Hawk. This is shorter than standard and the tyres are narrower.

available at either end of the pitch range.

With its full load, including about 80 gallons of petrol (which, incidentally, is of 87 octane number, permitting full advantage to be taken of the 6:1 compression engines), and Captain Edgar Percival, the designer, at 215 lb., one of the machines while on test (actually it was Capt. Miller's *Golden City*) was off the ground in 16 seconds and took a landing run of only 200 yards.

Provision is made for Irvin "Chairchutes," and the instruments will include some of Sperry, Reid and Sigrist and Kollsman manufacture.

At the moment of writing it seems uncertain if spinners will be available for the airscrew hubs, but should these not be ready for the race it is proposed to reduce the size of the disc behind the airscrew so as to avert some of the slight loss in performance which will probably result.

One small feature of interest noticed during an inspection of the machines was the installation of the venturis for

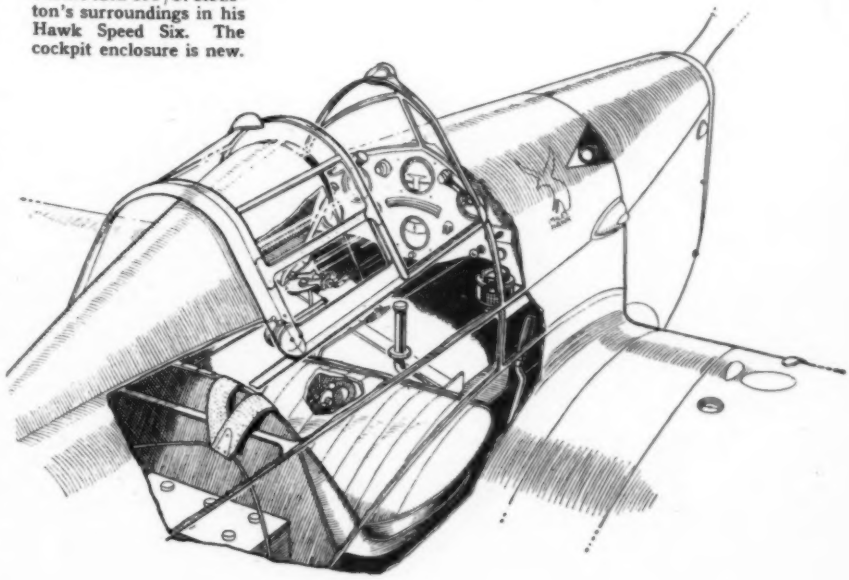
the blind-flying instruments within the cooling chute of the engine.

Campbell Black's ill-fated machine, flown by Capt. Percival, made fastest time in this year's King's Cup Race, covering two laps at over 210 m.p.h. At that time it had a standard Gipsy Six and fixed-pitch airscrew.

Vega Gull — Nos. 5, 6 and 7

Largest and latest of the Percival range, the Vega Gull is planned on similar lines to the Gull but carries four passengers. A low-wing cantilever monoplane embodying standard

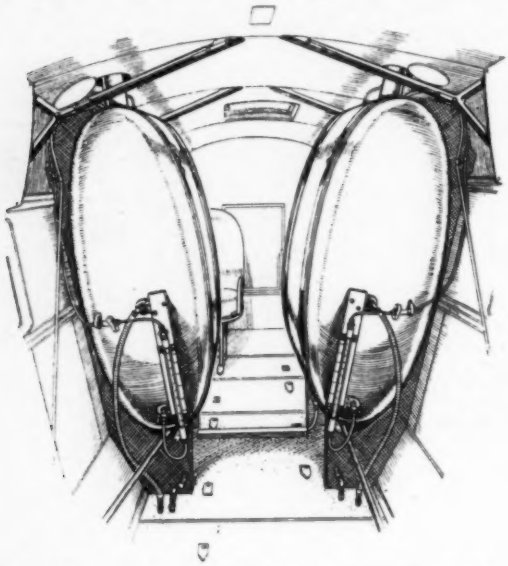
This sketch gives an excellent idea of F/O. Clouston's surroundings in his Hawk Speed Six. The cockpit enclosure is new.



The modified Hawk Speed Six (220 h.p. Gipsy Six R) to be flown by F/O. Clouston. Its maximum speed is about 200 m.p.h.

Percival wooden construction, trailing edge flaps and a well-faired fixed undercarriage, the Vega cruises, with a standard 200 h.p. D.H. Gipsy Six and fixed-pitch airscrew at 150 m.p.h., but when equipped with the Gipsy Six Series II-D.H. variable-pitch airscrew combination this figure is increased quite considerably and, with the 94-96 gallons of fuel which is being carried in Scott and Llewellyn's machines, it can maintain it for about 1,500 miles.

There are two tanks in the outer wing panels of 20 gallons capacity each, two more in the centre section holding 14 gallons each, and a fifth, in the cabin, of 26-28 gallons capacity. It is hoped to carry 250-260 lb. of "payload" for the race.



Extra tankage arrangements in Flt. Lt. Tommy Rose's B.A. Double Eagle. The single passenger seat can also be seen.

At the moment of writing it seems uncertain if the Vega Gull entered by Lt. Misri Chand will start. This machine, which has a Series I Gipsy Six and a fixed-pitch airscrew, was flown in the last King's Cup Race by Lt. Randolph, who is listed as co-pilot with the entrant.

In its original form the Vega Gull is capable of 170 m.p.h. at full throttle, and with standard tankage is good for a range of 630 miles.

Vega Gull No. 12 will also be absent from the starting line. This is the machine on which Mrs. Beryl Markham made her recent trans-Atlantic crossing and which was damaged on landing in a bog. C. W. A. Scott's mount is actually the machine which won the King's Cup Race this year, and Llewellyn's has also had racing experience in the hands of Lt. Misri Chand in the same event.

PHILLIPS & POWIS

Sparrow Hawk — No. 3

Mr. Victor Smith may count himself fortunate in having secured a mount which, besides being quite usefully fast, has an excellent range, for, with 100 gallons at the disposal of the high compression Gipsy Major in his new Sparrow Hawk, he should be able to cover longer stretches at a session than most of his competitors.

Registered G-AELT, and coloured a royal blue, his machine is brand-new, although in all essentials it resembles the familiar "D N L" and "D W W." The Sparrow Hawk is the smallest of the current Miles designs, having a wing area of only 138 sq. ft. (the Hawk Major has 169 sq. ft. of area) and a span of 28ft. The centre section to be found on other Miles single-engined models is absent, and the trousered undercarriage has its origin on the main wing panels. The track is wide, which accentuates the squat appearance, so it should not be confused with Clouston's Speed Six Hawk which is cream in colour and has a cockpit enclosure.

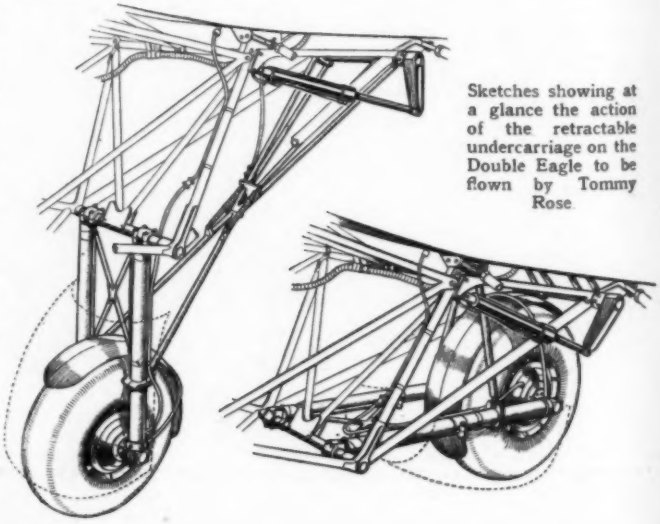
Gross and tare weights, in racing trim, are, respectively, 2,175 lb. and 1,200 lb.

Hawk Speed Six — No. 8

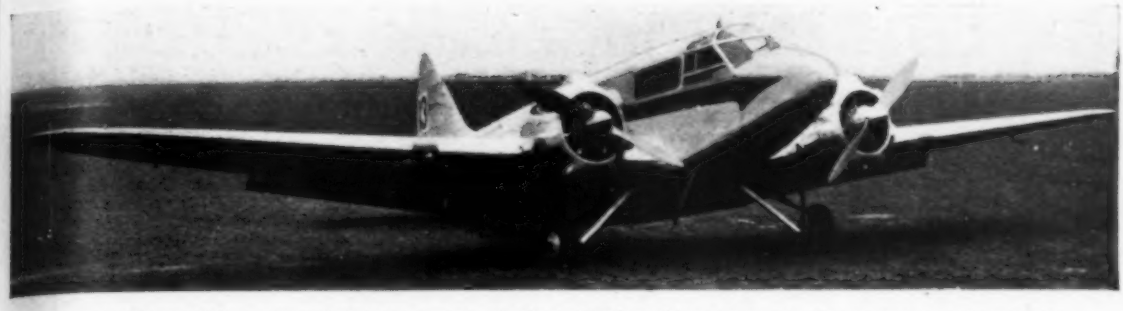
As racing aeroplanes go these days, F/O. Clouston's "D O D" is quite a veteran. Built, in the first instance, for, and round, Miss Ruth Fontes, who flew it in the King's Cup Race two years ago, it was flown into second place in this year's event by Tommy Rose, for whom it averaged 184.20 m.p.h. Straight and level, it was reputed to do 194 m.p.h., but refinements, chief of which is a new design of cockpit enclosure, are estimated to assist it up to the magic region of 200 m.p.h.

The undercarriage is somewhat shorter and narrower than on the Hawk Major. Flaps are incorporated and the structure is quite standard. The gross weight in South African racing trim is 2,500 lb. and the wing area is 176 sq. ft., which is about the same as on a standard Hawk Major.

A Gipsy Six R racing engine is fitted, giving about 220 h.p. at 2,350 r.p.m. The airscrew is a standard metal Fairey. Fuel of 77 octane number is specified, and provision has been made for 101 gallons, allowing a range in the neighbourhood of 1,500 miles.



Sketches showing at a glance the action of the retractable undercarriage on the Double Eagle to be flown by Tommy Rose.



No. 13, the Airspeed Envoy, is probably the most completely equipped machine in the race. The engines are Cheetah IXs.

Peregrine — **No. 11**

The scratching of the new Miles Peregrine light twin-engined transport, which, at the moment of writing seems to be possible, is one of the more unfortunate features of the race. With an experienced crew the machine was expected to give a very good account of itself, and should have been able to fly non-stop for long distances at a high cruising speed, for the maximum is generally rumoured to be about 200 m.p.h.

BRITISH AIRCRAFT MFG. CO.

Eagle — **No. 10**

Intended primarily as a *de luxe* tourer the B.A. Eagle is a low-wing cantilever monoplane with seats for three, a retractable undercarriage, standard Gipsy Major engine and a cruising speed of 130 m.p.h., the maximum being 148 m.p.h. Figures for the tankage and range of Eagle No. 10 are not available.

Double Eagle — **No. 4**

With Tommy Rose as pilot and a distinguished King's Cup performance behind it, the Double Eagle is heavily fancied. A 1936 model of advanced design it mounts a pair of Series I Gipsy Sixes which drive fixed-pitch Fairey airscrews. With this combination and flown by Flt. Lt. J. B. Wilson it secured third place in this year's King's Cup Race at an average speed of 181.13 m.p.h. The maximum speed in its present form is about 200 m.p.h.

Planned as a high-speed light transport or a luxurious private-owner's machine the Double Eagle is characterised by an unusual wing arrangement, the inner portions of the wings sloping down from the top of the fuselage to the engine nacelles whence the main panels are run out with a dihedral angle. The undercarriage is completely retractable into the nacelles.

Extra tankage has been installed in the cabin but no official figures for range or fuel capacity have been publicised by the manufacturers. In racing trim the Double Eagle has one seat in the cabin.

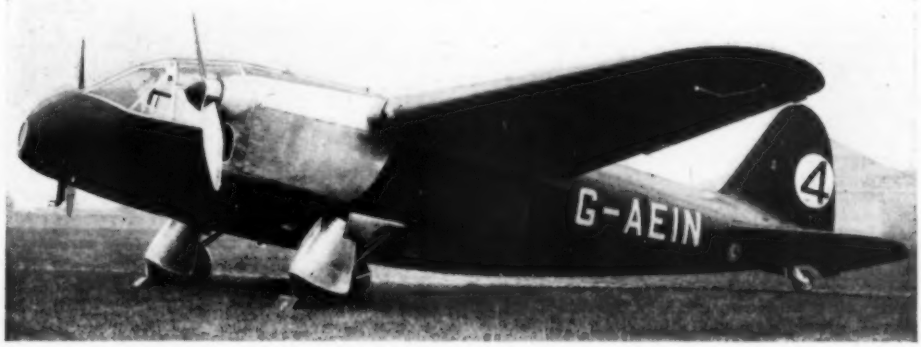
AIRSPEED

Envoy — **No. 13**

The largest and one of the fastest machines in the race, the Series II Airspeed Envoy transport monoplane to be flown by Messrs. Ken Waller and Max Findlay is a stock model modified in detail for the race. Fitted with a pair of Siddeley Cheetah IX radials, which give a maximum output of 350 h.p. at 7,500ft., the top speed of the type is 210 m.p.h.

With a Gipsy Major engine the B.A. Eagle (No. 10) has a cruising speed of about 130 m.p.h. The pilots will be Mr. C. G. M. Alington and Lt. P. H. Booth, R.N.

Certain of the cabin windows have been covered up and extra tankage has been installed, together with arrangements for a crew of two besides the pilots. Marconi radio is carried, and on the whole the machine seems exceptionally well equipped. In racing trim the all-up weight is 7,000 lb., which is 700 lb. heavier than that of the standard commercial machine. This gives a wing loading of rather more than 20 lb./sq. ft.



Although its Gipsy Sixes are not of the Series II type and it has fixed-pitch airscrews, Tommy Rose's B.A. Double Eagle is expected to give a very good account of itself.

THE RACE: R.Ae.C. OFFICIAL NOTICE

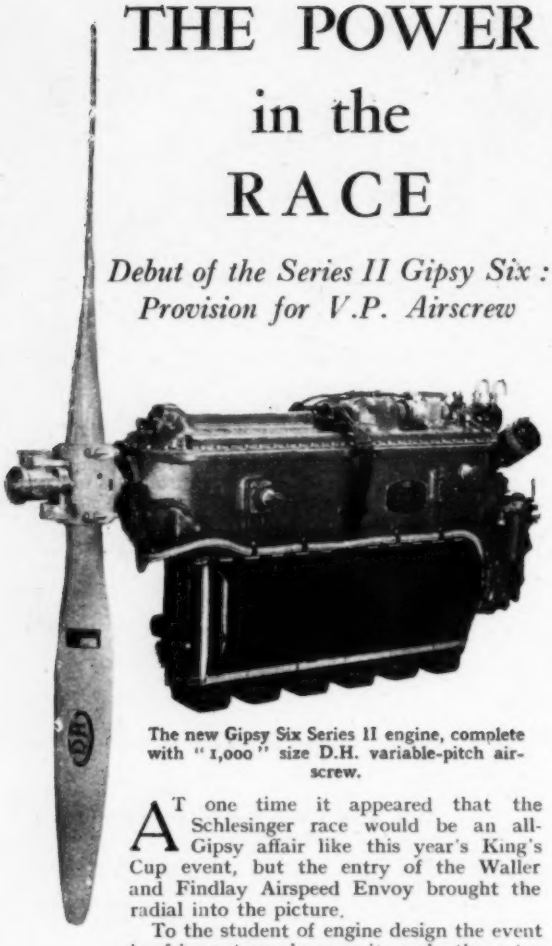
THE Schlesinger African Air Race will start from the City Airport, Portsmouth, on Tuesday, September 29, at 6.15 a.m. It is hoped that competing aircraft will be on view on Sunday and Monday, September 27 and 28.

Members will be admitted free to the special enclosure on all these days on presentation of their membership badges. There will be no charge to members for motor cars, but special badges must be obtained from the Club in advance.

Badges will be issued for members' guests at 5s., available for the three days. Application, accompanied by the requisite amount, must be made to the Club, at 119, Piccadilly, London, W.1.

THE POWER in the RACE

Debut of the Series II Gipsy Six : Provision for V.P. Airscrew



The new Gipsy Six Series II engine, complete with "1,000" size D.H. variable-pitch airscrew.

AT one time it appeared that the Schlesinger race would be an all-Gipsy affair like this year's King's Cup event, but the entry of the Waller and Findlay Airspeed Envoy brought the radial into the picture.

To the student of engine design the event is of importance because it marks the entry of the new Series II Gipsy Six into general use. This unit is described in some detail hereafter, together with notes on the remaining engine types, which are already familiar.

D.H. Gipsy Six Series II.—Like the Series I engine this new unit, installed in machines Nos. 1, 2, 6, 7 and 11, is a six-cylinder in-line type, inverted and air-cooled.

It has been approved for use with fixed-pitch, two-pitch variable and constant-speed airscrews, and also differs from the Series I engine in that it has been developed to use the higher octane tetra-ethyl leaded fuels.

While its maximum power output under fixed-pitch conditions is not greatly in excess of the Series I engine, the main purpose embodied in the design is to obtain higher consistent power outputs over the cruising range, and also a considerable increase in power for take-off purposes, made permissible by the use of v.p. airscrews. The brief specification is as follows:

Having a total capacity of 9.186 litres (560.6 cu. in.), and compression ratio 6:1 the six cylinders are deeply spigoted into the crank case. The slipper-type pistons each carry one scraper and two compression rings.

The nickel-chrome crankshaft, machined all over, runs in eight steel-backed white-metal main bearings, with a ball thrust-bearing at front end. Cast in Elektron, the crank case has a small sump at the rear end. The top cover carries magnetos, distributors and driving gear.

One inlet and one Stellited exhaust valve per cylinder seat directly on high-expansile steel seats designed to permit the use of leaded fuels. Operation is by steel rockers, light alloy tubular push-rods, and steel tappets off a camshaft running in seven bearings on the port side. The camshaft is driven from the front end of the crankshaft by spur gears.

Camshaft and all auxiliary drives are taken from a gear wheel on the front end of the crankshaft between the ball thrust-bearing and the first crank-throw. A train of gears drives the camshaft, and also the shaft (in the top cover) which runs at 1.5 times crankshaft speed to drive the two B.T.H. magnetos. An extension of this shaft rotates the constant-speed airscrew governor and a vacuum pump for the operation of flying instruments. This latter accessory may be replaced by an oil servo pump suitable for use with certain types of automatic pilot. Accommodation has also been made for an oil pressure increasing valve and hand-control, for use when two-position c.p. airscrews are fitted. Fuel and oil pumps are driven off a vertical shaft at the back of camshaft.

Two Claudel-Hobson AI.48 downdraught carburetters each supply three cylinders, and up to the highest cruising speed draw through a flame-trap warmed air from around the cylinders. When the throttle is fully opened a change-over flap is moved and air is taken from outside the cowling. Thus freezing is prevented at cruising r.p.m., with no loss of performance at full throttle. When, however, a c.p. airscrew is fitted and operational conditions may require full throttle settings on the carburetter under cruising conditions, a separately operated flame-trap control, to be used in conjunction with an air intake thermometer, is fitted; thus induction temperatures may be regulated from the cockpit.

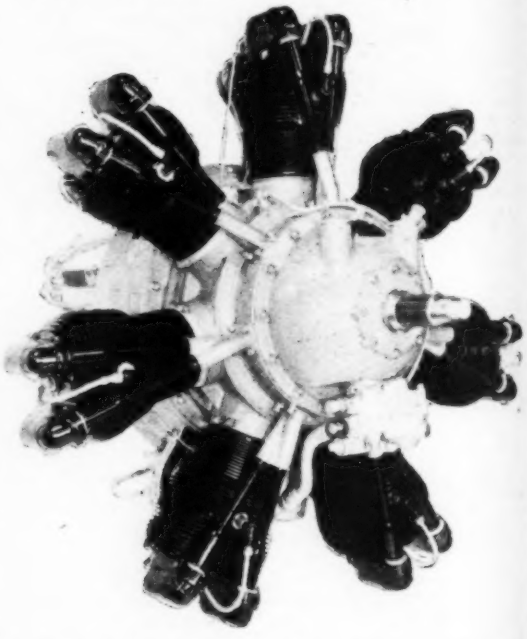
Lubrication

Oil pumps and filters form a detachable unit at the back of crank case. A gear pump draws oil through a gauze filter and delivers at 40 to 45 lb./sq. in. pressure to an Auto-Klean filter. The main stream goes by way of a cast passage in the top cover to the main bearings and thence to the crankshaft, oil being thrown from holes drilled in the big-end bearings and caps on to cylinder walls and pistons. Cams and tappets are lubricated by splash, while other streams, adjusted by a balanced piston arrangement to 15 lb./sq. in. lubricate camshaft and other accessory drives. Two scavenge pumps, each with detachable fine-mesh gauze filter, draw oil from each end of crank case. Except for the connections to tank, there are no external pipes.

Provision is made for the fitting of a Rotax or B.T.H. electric starter.

Equipped for use with fixed-pitch airscrew and including cooling baffles, but without starter or airscrew boss, the engine weighs 469 lb. ± 7½ lb. (213 kg. ± 3 kg.).

Performance figures are as follows: On 77-octane fuel containing not more than 4 c.c. of tetra-ethyl lead per gallon, mixture temperature of 260 deg. F., fixed-pitch airscrew: Normal output, 185 b.h.p. at 2,100 r.p.m.; maximum output,



The Envoy is fitted with a pair of these Armstrong-Siddeley Cheetah IX radials which give a maximum output of 350 h.p at 7,300 ft.

205 b.h.p. at 2,400 r.p.m. With controllable-pitch airscrew, the rated output is 205 b.h.p. at 2,400 r.p.m. Fuel consumption is 11¼ gallons (52 litres) per hour, cruising at 2,100 r.p.m., or 16 gallons (73 litres) per hour at full throttle (2,400 r.p.m.). Oil consumption is 3 to 5 pints (1.7 to 2.8 litres) per hour at 2,100 r.p.m.

D.H. Gipsy Six Series I.—The power plant of machines Nos. 4 and 5, the Gipsy Six I, gives a normal output of 185 h.p. at 2,100 r.p.m. and a maximum of 200 h.p. at 2,350 r.p.m. At full throttle its fuel consumption is 15 gallons an hour. The Gipsy Six Series I is not normally arranged to drive a variable-pitch airscrew.

Gipsy Six R.—A special racing model of the Gipsy Six developed originally for use in the D.H. Comets in the MacRobertson England-Australia Race of two years ago, the Gipsy Six R is the power plant of F/O. Clouston's Hawk Speed Six No. 8. It runs at higher speed than the standard Series I, giving 224 h.p at 2,400 r.p.m. and 160 h.p. at 2,250 r.p.m. at 10,000 ft. on 77-octane fuel.

D.H. Gipsy Major (Standard).—Basically a four-cylinder inverted in-line air-cooled model, the standard Gipsy Major figures in the entry list as the power plant of the B.A. Eagle No. 10. At 2,100 r.p.m. this unit gives 120 h.p. and 130 h.p. is available at 2,350 r.p.m. The fuel consumption at full throttle is 9.75 gallons an hour.

D.H. Gipsy Major (High Compression).—Substantially similar to the standard Gipsy Major, the engine in Mr. Victor Smith's Sparrow Hawk has a compression ratio of 6:1, which gives a normal power of 129.5 h.p. at 2,100 r.p.m. at 1,000 ft., and a correspondingly high maximum output.

Armstrong Siddeley Cheetah IX.—The sole representative of the radial type in the race is the Siddeley Cheetah IX seven-cylinder moderately supercharged unit in Findlay's and Waller's Airspeed Envoy. This type develops a maximum of 350 h.p. at 7,300 ft. and 2,425 r.p.m. when operating on fuel of 87-octane number. It is an ungeared unit, and in the South Africa race the Cheetahs will drive Fairey fixed-pitch metal airscrews.

THOMAS CAMPBELL BLACK

IT is with the deepest regret that *Flight* records the death, last Saturday, of Mr. Thomas Campbell Black. He was involved in a collision on Speke Aerodrome, Liverpool, between his Mew Gull, which he was to have flown in the South Africa race, and a Service Hart. It appears that, as he taxied out to take off for Gravesend, the airscrew of the slowly moving Hart cut through a wing and into his cockpit, inflicting terrible injuries which quickly proved fatal.

An inquest was opened at Liverpool on Monday but was adjourned for a week.

Tom Campbell Black was born in 1899 and served during the war in the R.N.A.S. and R.A.F. In post-war years, while farming in Kenya, he was a pioneer of civil aviation, and, apart from making thirteen flights between that colony and England, founded Wilson Airways, Ltd. In 1929 he flew from Nairobi to England in eight days. During the visit of the King, then Prince of Wales, to East Africa six years ago, Campbell Black was temporarily appointed his personal pilot. He was also engaged as private pilot to Lord Furness. In 1930 he made the first non-stop flight from Zanzibar to Nairobi, and in the following year rescued Herr Ernst Udet, who was starving on an island in the Upper Nile.

His most notable performance was in the MacRobertson England-Australia Race of 1934, when, as co-pilot with C. W. A. Scott, he gained first place, covering the distance from Mildenhall to Melbourne in 70 hr. 59 min. in a D.H. Comet. Subsequently the Royal Aeronautical Society awarded him the Britannia Trophy for 1934 and the British silver medal for outstanding achievements in aeronautics.

In 1935 he married Miss Florence Desmond, and that August he set out on a Comet to make an attempt on the Cape record, but was forced to abandon the journey at Cairo. During the following month he was off again, in company with Mr. J. H. G. McArthur, on another attempt to lower the record, but, with his companion, was forced to leave the machine by parachute 100 miles north of Khartoum.

In late months he has led British Empire Displays, and the following is a tribute from "J. A. T.," one of his colleagues:

"'C. B.' was not with us all of the time, but each member of the staff looked forward to those long week-ends when he came on tour. The sight of his black-and-silver Puss Moth seemed to signify that all was well with the flying world; his presence was a tonic and an indication that we were going to have a successful week-end.

"Tom Campbell Black was one of the best 'mixers' with whom twenty years of flying has brought me in contact. Rank meant nothing to him, his smile and ready quip were for all. Generous to a fault, he had the happy knack of doing favours that were not recognised as such until long afterwards. The impish seriousness with which he would casually mention a 'sticky' journey, which you knew was more than 'sticky,' endeared him to the hearts of the other pilots. With an unusually good memory, 'C. B.' could keep the party in good humour without in any way usurping the conversation.

"I have a particularly happy memory of him somewhere in the North Country. The proprietor of our hotel had been telling us of the illness of her son, who was to enter the Royal Air Force at Halton in a very short time. The lad's principal distress was that he had been unable to see our show that day, and that he had dearly wanted the autograph of Mr. Black. Someone mentioned the matter to 'C. B.'—and we lost his company for more than an hour. Somewhere there is a boy-mechanic who cherishes not only a famous autograph, but the memory of an hour of talk that encompassed the world.

"It would be intrusiveness on my part to write of Campbell Black's services to aviation, when so many famous pilots in the world will be prepared to pay homage to the master-hand. I need only say that on one occasion I heard him say, 'This field doesn't look too good to me. Let me have a try with two of the staff.' Everyone within hearing moved as one man towards the famous Puss Moth."

Forthcoming Events

September 29. London-Johannesburg Race.
October 8. R.Ae.S. Lecture*: "Tapered Wings," by Dr. G. V. Lachmann.
October 22. R.Ae.S. Lecture*: "Economics of Airline Operation," by Mr. L. T. H. Greig.
October 25. Aero Club de France Saigon Race.
October 30. Croydon Airport Staff Ball.
November 12. R.Ae.S. Lecture*: "Skin Friction," by Dr. F. W. Lanchester.
November 13-29. International Aero Exhibition, Paris.
November 19. R.Ae.S. Lecture*: "Aerodrome Design," by Mr. Nigel Norman.
December 10. R.Ae.S. Lecture*: "Civil Flying Boats," by Mr. A. Gouge.
December 17. R.Ae.S. Lecture*: "Profile Drag," by Prof. Melvill Jones.

*All R.Ae.S. lectures take place at the Royal Society of Arts, 18, John St., London, W.C.2, at 6.30 p.m. Admission is by ticket obtainable through a member.

HOW THINGS WENT IN 1935

The Civil Aviation Report Appears

THE *Report on the Progress of Civil Aviation, 1935*, reaches us nine months after the end of the year with which it deals, and its savour is rather that of very well-hung grouse. Most of the events recorded in its pages have been faithfully dealt with at the time in the pages of *Flight*, and any of our readers who may purchase the volume at a price of 5s. from the Stationery Office can hardly be blamed if they mutter as they turn over the pages "1935 and all that."

Exports

Still, this is a carefully compiled book, very useful for reference in the years to come, and there are certain facts which it may be useful to set down here for those who have forgotten them or perhaps did not notice them last year. In particular, the growth of export business cannot be summarised until the year has passed and gone. The *Report* sets it forth that "in spite of the demands of the Royal Air Force expansion programme, the year 1935 set a new record in aeronautical export trade. The total value of the aeronautical exports from the United Kingdom during 1935 was £2,721,441. This is £562,774 more than the previous record, which was set at £2,158,667 in 1929." After 1929 there came the well-remembered slump. Last year more than seventy States throughout the world appeared on the order book of the industry.

Accidents

Accidents is a subject in which the public is always interested, and in 1935 there were fifty-four notifiable flying accidents in the United Kingdom, and, outside it, the disaster to the flying boat *City of Khartoum*. Of these, twenty-two had fatal results, and five caused serious personal injury. The *Report* concludes that twenty-five crashes could be described as "major." Of this total, fourteen were attributed to error of judgment or faulty airmanship on the part of the pilot, five were due to engine failure, three to bad visibility, and the rest to various causes. The most extraordinary case was that of an experienced instructor who had fitted the control column but omitted to insert the safety pin; while looping at a very low altitude, the joystick came adrift in his hand and the machine dived into the ground. In another case the passenger in a dual-control machine interfered with the controls while the pilot (who was not experienced) was manœuvring to land. Result: a fatal dive.

Municipal Aerodromes

It has been the rule since 1928, when there were no licensed municipal aerodromes, that the number of them should increase by three or four every year. But in 1934 there were twenty-one and in 1935 there were twenty-seven. The *Report* does not tell how many of them are losing money, but it does say that "certain" of them dealt with a very considerable volume of traffic in the spring and summer months, and also received appreciable revenue from taxi and pleasure flights. It then remarks unctuously that "there are, therefore, encouraging signs that the foresight of the municipalities concerned . . . will prove to have been fully justified." Perhaps these signs will become clearer, or otherwise, when the report of the Maybury Committee is published. Which reminds us that nothing has been heard about that committee for months past. Until that report is published, the establishment of any more municipal aerodromes would seem to argue very little foresight indeed.

Clubs

At the end of the year under review there were about seventy light aeroplane clubs in the country, forty-two of which were receiving financial help from the Air Ministry. Twelve new clubs were "approved" during the year. The average total membership of the approved clubs was 9,112. At the end of the year 2,489 members held "A" licences. This was a great improvement on the figure for the previous December.

Traffic Control

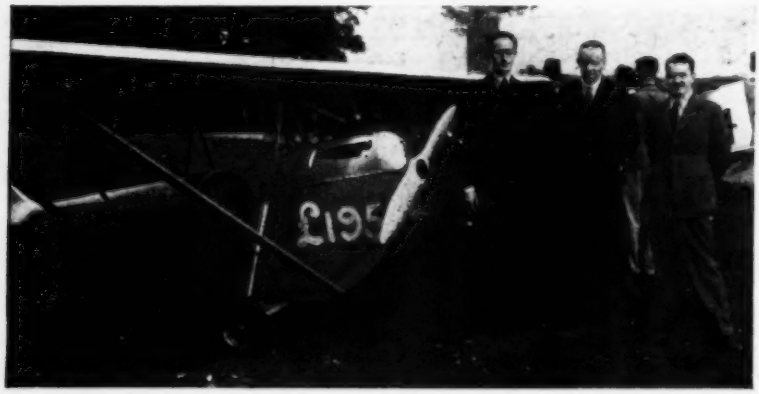
During the year the Air Ministry grappled seriously with the problem of controlling air traffic in the area of the London-Continental airway, and during the year the control of traffic to and from Heston was taken over by the Air Ministry. One of the control officers from Croydon was posted to Heston, and in consequence liaison between the two airports is stated to have been much improved. Congestion round the London airports is, however, likely to be a problem for some time to come, and future *Reports* will doubtless record other measures taken in the endeavour to ease the situation.

HANWORTH HOSPITALITIES

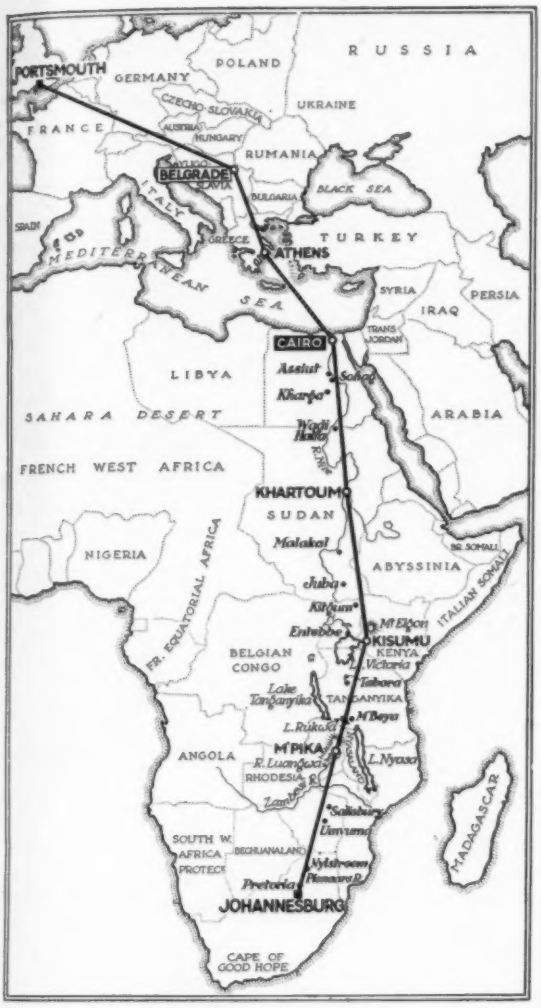
WHEN the London Air Park Flying Club and Aircraft Exchange and Mart held their Hanworth garden party last Sunday it seemed that the weather, which has wrecked so many flying affairs just lately, was going to repent, for the proceedings opened in warm sunshine; but such presumptious hopes were due for a shattering, and shortly after the tea interval an unpleasantly black cloud disgorged itself and the visitors made a concerted dive for the comforts of the hotel, incidentally leaving a fun-fair, which has been arranged as an evening side-show, to a dismal and dripping isolation.

The flying programme was very much "as before," but was none the worse for that. The winner of the arrival competition, Mr. Palmer, having shown the usual elusiveness of all arrival competition winners when loud-bespoken to collect his five guineas, Mr. C. J. Pooley, of Aircraft Exchange and Mart, discoursed over the microphone while divers people performed in assorted aeroplanes. F/O. Wilson and Mr. L. Rowley led off aerobatically on two of Flying Training's Blackburn B.2s, and Mr. Marsh followed with the C.30 Autogiro. Then, by way of a novelty, no fewer than four Aeroncas, seating respectively Messrs. Kirwan, Duncanson,

(*Continued on page 323.*)



Plainly ticketed! Messrs. Blayney, Broughton and Wilson with the new Broughton-Blayney monoplane (30 h.p. Carden). (*Flight* photograph.)



OVER THE ROUTE

With Flt. Lt. TOMMY ROSE

One of our Best-known Long-distance Pilots Explains Some of the Features and Difficulties of the Route to Johannesburg as it will Appear to Competitors in the Race

FEW pilots are better qualified to write about the East Coast Route to the Cape than is Flt. Lt. Rose. Quite apart from his long experience, dating from the war years, of general flying and instruction, he made the penultimate out-and-home Cape records with a Miles Falcon, and therefore can see the Johannesburg race route and its difficulties from the point of view of the pilot who is covering the whole distance in four days or less.

FIRST of all I must make it clear that what follows is merely a collection of notes consisting of personal suggestions, and is not guaranteed to be entirely up to date. However, even if it is not of any great value to those of my fellow competitors who do not know the route, it may at least give the ordinary reader some idea of what people who do this sort of thing are letting themselves in for.

The route across Europe to Belgrade is probably known to most readers better than to myself, for I have only been to that town once, and then not directly. Zemun aerodrome is easily recognisable and the surface is good; moreover the officials seem to do their best to help one. Most competitors should arrive here by noon on the first day.

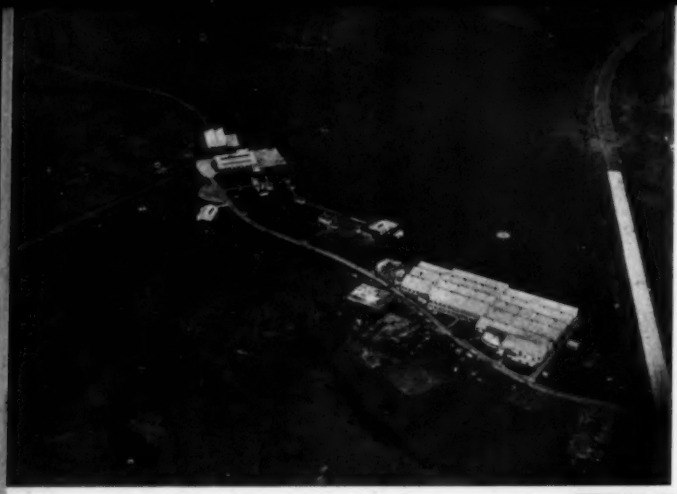
The flight to Almaza aerodrome, Cairo, which is a control, will need a bit of thinking out. The direct course from Belgrade to Cairo measures 1,182 miles, and I think it would be extremely unwise to attempt this unless one has a safe range of 1,400 miles, although there is an aerodrome at Alexandria, about 150 miles N.W. of Cairo. With the possible exception of the Mew Gulls, all machines will be making a landfall on the North African Coast in darkness, and it is extremely easy, without wireless, to spend a long, long time finding the aerodrome one is looking for under these conditions; I have wasted a lot of time and peace of mind in this way. Those pilots who wish to make certain will probably make an intermediate landing to refuel at Athens and should find no difficulties put in their way there.

Cairo, as most people know, is situated right at the south of the Nile Delta, and the one main stream is easily recognisable by moonlight. The airport beacon can usually be seen from the town, and the floodlighting is good.

The author, and the route which he describes in this article. Some of the competitors may not follow this route exactly, but may deviate to call at such aerodromes as Juba. Belgrade is an observed turn and Cairo a control.

The Egyptian officials are courteous and obliging, and, for those who have the time, the club bar is well stocked—but members always make it extremely difficult for visiting pilots to leave without a serious attack on this stock!

The next leg is likely to be flown at night—at any rate by the faster machines. It is, therefore, going to be extremely boring. The Nile wiggles about a lot and on the direct course to Khartoum it is out of sight most of the time. One can rest assured that whenever one sees a group of lights on the ground, it is a thousand to one that it is a village on the Nile cultivation, and that the river itself is only a few yards away. The course to Khartoum, which is 176 deg. magnetic, leaves the Nile immediately one sets off from Almaza and crosses it again about thirty miles south of Assiut. The lights of the village of Sohag should easily be recognisable, as the river takes a decided kink to the N.E. here, about 250 miles from Cairo. The river having disappeared to the eastward, one crosses the rail-



(Above) The jumping-off point : an aerial view of Portsmouth Airport. (*Flight* photograph.) **(Right) Typical desert country near Kharga, just south of Cairo.** (*Shell Aviation News.*)

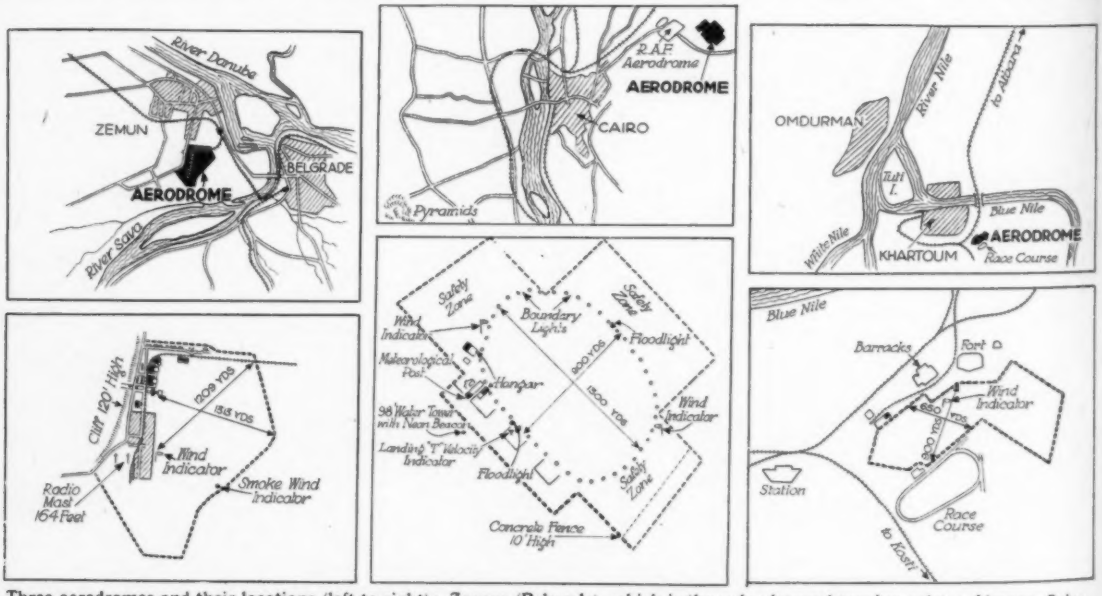
way to Kharga, which will probably not be visible from any height at night. The Nile is not crossed again until one has covered over five hundred miles, and then it should be seen about fifty miles north of Wadi Halfa. The cultivation here is very narrow, and rocky ground extends almost up to the river banks. There is no real landmark here, unless one decides to fly down the stream to Wadi, and to make certain of one's position.

On again, one may go over ground which is a little higher and most inhospitable (I had to make a forced landing on this section last time) till one should meet our old friend Mr. Nile just north of the fourth cataract, about 770 miles from Cairo. The river is here running almost N.E., and is left immediately. I myself shall alter course here a few degrees east, so as to ensure hitting the river some distance north of Khartoum. This town should be easily recognisable, not only from its size and consequently the large number of lights, but because it is situated at the junction of the White and Blue streams.

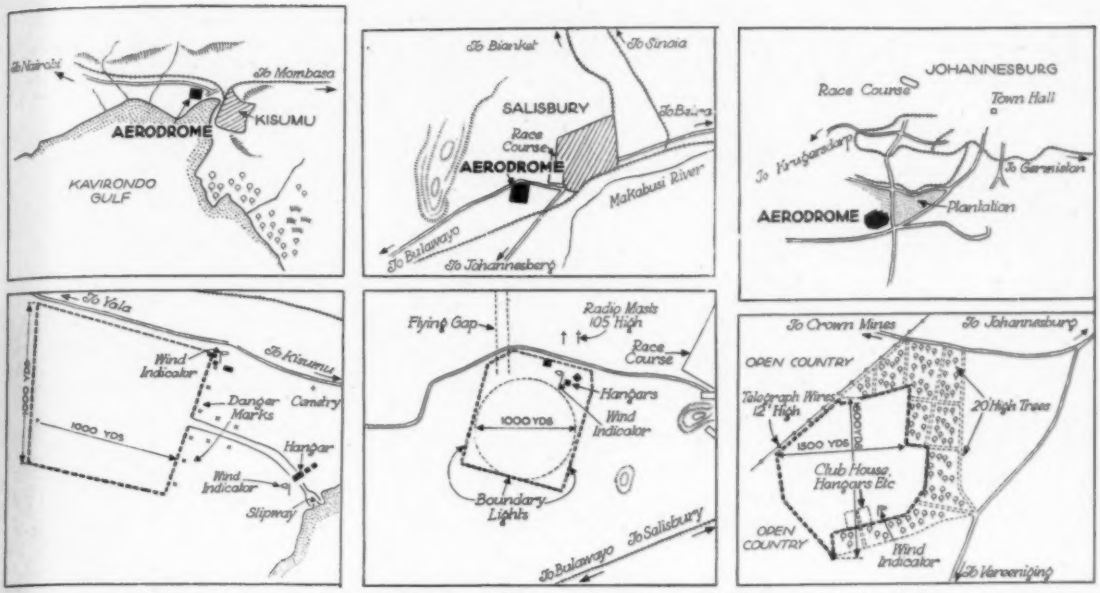
If it is still night-time, care will have to be taken in the approach to land, as there are a number of wires and other obstructions. The surface is reasonably good, but there are soft patches, which are sometimes cut up by heavy machines. There is no floodlighting, but the use of flares is usual. Those lucky devils with longer range may prefer to go on to Khosti, where a very good aerodrome now exists due east of the town and on the east bank of the river. I understand that the old landing ground here which I have used (on the other bank) is no longer in action.

Those who go direct from here to Kisumu or Entebbe are in for perhaps the most boring part of the journey, over very grim and hopeless country for a forced landing. There are several mountains of over six thousand feet which will serve as some sort of check ; but it has been my experience that these are frequently marked in the wrong place, and if there is any doubt about it, stick to the course the compass has given you.

For those going to Kisumu, Mt. Elgon should be visible for a very considerable distance, and one's course lies right over the top if one sticks strictly to it. I once saw Elgon from Kitgum, about two hundred miles away, but it is frequently obscured by clouds, which hang around it and are seen nowhere else. Those who have to go *via* Juba



Three aerodromes and their locations (left to right): Zemun (Belgrade), which is the only observed turning point ; Almaza, Cairo, the only control ; and Khartoum. (Prepared from *Shell Air Route Schedule.*)



Three more aerodromes (left to right): Kisumu; Salisbury, Rhodesia; and Baragwanath aerodrome, Johannesburg. (Prepared from *Shell Air Route Schedule.*)

will be well advised to stick very conscientiously to the compass after Malakal, for the river soon disappears into hundreds of small streams and a dreadful-looking swamp known as the Sudd. This is really a shocking area, and several airmen who have been lost there have suffered a great deal of inconvenience, to put it mildly, and cost the Royal Air Force a lot of petrol and extra work looking for them. In fact, they were very lucky to have got away with it at all. Just north of Juba the Nile sorts itself out a bit, and the aerodrome is not difficult to find.

From Kisumu onwards competitors will probably go various ways. I hope to go to M'Pika, refuel there, and then straight to Jo'burg, but this is supposing I have been able to stick to my schedule and get to Kisumu by noon on the second day. If I do not do this, then I certainly shall not attempt to find M'Pika after dark, but will go to M'Beya, take on some more fuel, and push off to Salisbury. Although it is not easy to find from the north, because of the hill (I missed it in daylight last time), they have a good aerodrome there as well as up-to-date flood-lighting and a beacon. From Salisbury to Johannesburg is just over 600 miles, and if the weather is kind, this section should not be too bad at night—even without wireless.

Some parts of the leg from Kisumu to Salisbury are supposed to be the worst of the whole trip, but personally I dislike the country between Khartoum and Kisumu far more. On this last leg but one—i.e., to Salisbury—the maps are still far from infallible, but there is something growing on the ground and water to be seen, although they tell one that it is undrinkable and that the greenest areas spell tsetse fly.

Coming south from Kisumu, one flies over fairly interesting country alongside Lake Victoria, leaving Tabora a few miles to the west, and after 600 miles one should pass between the end of Lake Rukwa and M'Beya. The mountain just to the north of the latter aerodrome is a good landmark, being about 8,000 ft. high. Then, after about another hundred miles, one flies down the valley of the river Luangwa for over three hundred miles.

(Above) The hangars at Kisumu. (Right) The Sudd, near Malakal, described by Flt. Lt. Rose as "a dreadful-looking swamp . . . a really shocking area." (*Imperial Airways* photographs.)

SCHLESINGER AIR RACE ENTRIES

Racing No.	Registration.	Entrant.	Pilots and Passengers.	Aircraft.	Engine.
1	ZS-AHM	Len Oates	Major A. M. Miller	Percival Mew Gull ..	Gipsy Six II
2	ZS-AHO	Capt. S. S. Halse ..	Capt. S. S. Halse	Percival Mew Gull ..	Gipsy Six II
3	G-AELT	Victor Smith	Victor Smith	Miles Sparrow Hawk	Gipsy Major (H.C.)
4	G-AEIN	Henry S. Horne.. ..	Flt. T. Rose, Jack Bagshaw ..	B.A. Double Eagle ..	Two Gipsy Six
5	G-AEKD	Lt. Misri Chand.. ..	Lt. Misri Chand, Lt. P. Randolph.	Percival Vega Gull ..	Gipsy Six
6	G-AEKE	Sir Connop Guthrie ..	C. W. A. Scott, Giles Guthrie..	Percival Vega Gull ..	Gipsy Six II
7	G-AEAB	F/O. D. W. Llewellyn ..	F/O. D. W. Llewellyn, C. F. Hughesdon.	Percival Vega Gull ..	Gipsy Six II
8	G-ADOD	F/O. A. E. Clouston, F. E. Tasker.	F/O. A. E. Clouston	Miles Hawk Speed Six	Gipsy Six R.
10	G-ADID	C. G. M. Alington ..	C. G. M. Alington, Lt. P. A. Booth, R.N., Paymaster Lt. R. H. Alington, R.N.	B.A. Eagle	Gipsy Major
11	G-AEDE	Bateman Scott	Flt. Lt. H. R. A. Edwards, Sqn. Ldr. B. S. Thynne.	Miles Peregrine ..	Two Gipsy Six II
12	VP-KCC	John E. Carberry ..	John E. Carberry	Percival Vega Gull ..	Gipsy Six
13	G-AENA	Max H. Findlay, Kenneth Waller.	Max H. Findlay, Kenneth Waller, A. H. Morgan, C. D. Peachey.	Airspeed Envoy ..	Two Cheetah IX
14	G-AEKL	Air Publicity, Ltd. ..	——	Percival Mew Gull ..	Gipsy Six II

It is almost a hundred miles across in one or two places, and on the west side there is the Muchinga range, and on the east the mountains of Nyassaland. This is a very naughty bit of country, and, as it is said to be full of tsetse fly, not too good for a forced landing.

The Luangwa eventually bearing off to the west one's course is over high ground, some of it at almost 5,000 ft., and then on to the Zambesi, which at all seasons is quite a large stream at this point. From the Zambesi the course can be exceedingly tricky, especially if the weather is bad and if one is getting tired. There is a good deal of high ground, and Salisbury is almost surrounded by hills. The aerodrome here is good and the officials exceedingly charming and helpful.

Sounds Easy?

From Salisbury on towards the finish there will be night flying for the faster machines. Umvuma should be seen after a hundred miles or so, and from there little will be seen until one hits the railway at Nylstroom, about a hundred miles from journey's end. Then on over Pienaars River and Pretoria to the finish. It sounds ever so easy, but it is my opinion that the pilot of the aeroplane which gets there in under forty-eight hours will deserve just about the biggest bunch of bananas ever found.

Having got lost myself many times down this route when flying without wireless, I fully expect to do so again, and the pilot in this race who can honestly say at the end that he was sure of his position all the time will either be very lucky, very clever, or have a queer idea of honesty. I have invariably found that whenever I thought that I should be somewhere and wasn't, if I went on (once for over fifty miles) on the same course I got there. If I started to wander about, thinking I was off my course for some reason or other, I always got into trouble. The motto is obvious. There is sometimes a naughty grey mist on the Nile Delta. Last time I was down there I mistook a cinema sign in a fairly small town for the airport beacon.

Unless one has a safe two hundred miles to spare, in range, on any leg across Africa, one is likely to be causing the nervous system a lot of trouble sooner or later. Mine has often been troubled, but not from this cause. Long sea crossings do it in my case.

Taking a heavily laden machine off high altitude aerodromes is always a matter of extreme difficulty. When this has to be done with a full load in the middle of the day the pilot has to pedal (and pray) ever so much harder. After various hair-raising episodes I have found that it is better not to try and pull the machine off until one can see the whites of the eyes of the ants on the far boundary fence. This saves Captain Lamplugh a lot of money.

Motor Cycle Maintenance

NOW that trade conditions are so rapidly improving there is a corresponding increase in the popularity of the motor cycle as a means of transport for work and pleasure.

Like aeroplanes, cars and most other forms of machinery, these economical little vehicles need a certain amount of expert attention if they are to give of their best. Users will find that an extraordinarily valuable guide to such maintenance is the twenty-sixth edition of *Motor Cycles and How to Manage Them*, published at 2s. 6d. by Iliffe and Sons Ltd., Dorset House, Stamford Street, London, S.E.1. Not only is every aspect of mechanical maintenance dealt with in clear and simple fashion, but there are chapters on purchase and learning to ride—for the novice—and a section on legal aspects.

Twenty-six Swallows Make . . .

FIFTEEN flying clubs and schools in this country and seven abroad are now using a total of twenty-six B.A. Swallows for training, in some cases exclusively. The seven "foreigners" are the Adastra Flying School (Sydney, N.S.W.), the clubs at Penang, Bombay, Madras and Delhi, the Austrian Flying School and East African Airways. Four clubs in this country are now operating two Swallows apiece.

The winner of the Heston-Cardiff race, Mr. R. J. Waight, in the cockpit of the T.K.2. On the right can be seen a small section of the spectators and of the visiting machines at Cardiff airport. Another *Flight* photograph appears on page 309.

WELSH CLASSIC

Close Finishes in the Heston-Cardiff Race, won by R. J. Waight (T.K.2.) at a Speed of 190 m.p.h.

ALTHOUGH the most sanguine of handicap air race spectators know that they will have to await the millennium before seeing an entire field finish in line-abreast formation, the last two London-Cardiff races have probably approached as nearly as possible to that ideal. Last year a blanket of three minutes covered a field of ten over a 120-mile course, and this year the first four arrived within *thirty-eight seconds* of one another.

The first two—R. J. Waight (T.K.2) and C. S. Napier (Percival Gull)—crossed the Cardiff boundary neck and neck, with three seconds between them on the line. Actually, Waight's win was a particularly well-deserved one. He had received thirty-nine seconds from the scratch man, W. Humble (Hawk Speed Six), and had virtually held his lead, the latter obtaining the prizes for fastest time by one all-important second! For once in a way, with a following wind, it paid to fly high, and Waight flew up against the ceiling with about 5 m.p.h. more wind assistance, while Humble preferred to have more engine power and less assistance at tree-top level.

On the whole, conditions were not too bad for the race itself, but the poor visibility during the morning had accounted for two non-starters—and might easily have accounted for two more. Capt. E. W. Percival failed to get over from Gravesend with Major Miller's Mew Gull until the first man (L. J. C. Mitchell in the Western Airway's Puss Moth, entered by Mr. R. Cadman) had left, and the Misses Glass could not get through to start after the Hereford event; they came on to Cardiff in time to see the finish after putting down at Cheltenham. Humble and Napier got through from Hereford to Heston by the skin of their teeth and by virtue of the latter's intimate knowledge of the Great Western Railway.

Before, during and after the race various machines were demonstrated, mainly by private pilots, and Mr. H. R. Dimock, among them, put up one of the best ground and air demonstrations of the Drone that we have ever seen. He was unfortunate enough to be the focal point of the afternoon's only untoward incident. While making his landing circuit, flying down-wind and behind the club buildings, his hat blew off and broke the airscrew, so that he had to put the Drone down there and then—in a market garden. Very little of the machine was left, but it says much for the Drone that Mr. Dimock escaped with sundry cuts and bruises. On the following day an accident to another machine was, unhappily enough, destined to be very much more serious, casting a gloom over an otherwise bright and cheerful meeting.

Mr. W. Lindsay Everard, M.P. (who presented the prizes), and his pilot are to be congratulated on pushing through to Cardiff in the former's Vega Gull; Mr. S. Kenneth Davies for his superb work at the microphone; and the Cardiff Club in general for their hospitality, which, as usual, knew no bounds.

LONDON-CARDIFF RACE RESULT.

Pilot.	Machine.	Handicap.	Flying Time.	Speed.
		min. sec.	min. sec.	m.p.h.
1. R. J. Waight ...	T.K.2	0 39	37 57	189.72
2. C. S. Napier ...	Percival Gull ...	9 18	46 39	154.3
3. L. J. C. Mitchell ...	D.H. Puss Moth ...	15 37	53 20	135
4. W. Humble ...	Hawk Six	Scr.	37 56	189.8
5. P. Randolph ...	Percival Vega Gull ...	3 15	42 28	169.51

The winner used National Benzole fuel and Castrol oil and the machine's equipment included K.L.G. plugs, Hobson carburetter, B.T.H. magneto, Dunlop wheels and brakes, Husun compass, Dowty single-strut undercarriage, Titanine special finish and Rhodoid and Lancegaye screens.

The Lowe-Wylde Fund

CONTRIBUTIONS to the Lowe-Wylde fund totalled £894 12s. 6d. on September 10, the latest list of donations being as follows:—

	£	s.	d.
H. P. Folland	5	5	0
Mrs. M. Probyn	2	2	0
J. W. Howlett	1	1	0
A. J. Hughes	1	1	0
C. E. Holmstrom	1	1	0

Further contributions to the fund (which is to provide for the children of the late Mr. C. H. Lowe-Wylde, the ultra-light-aircraft pioneer) are still urgently required, and should be sent to Mr. E. C. Gordon-England at the London Air Park, Feltham, Middlesex.

They Won Through

MAJOR ANSON'S Monospar Croydon, which left for Australia at the end of July, and which was damaged in India, has now reached its goal. The actual flying time for the whole journey is stated to have been 59¼ hours.

From London to Karachi an average speed of 160 m.p.h. was maintained, and from Karachi to Port Darwin the Croydon's speed averaged 171, in spite of the fact that strong headwinds were met with over a considerable portion of the route. At no time was the machine raced, the two Wasp Juniors working considerably below maximum capacity.

It is expected that the machine will leave Australia on the return journey at the end of next week.

HEREFORD'S FIRST

R. F. Hall (Avro Cadet) Wins Three Counties Handicap

AFTER seven years of endeavour by a few interested Hereford people, notably Mr. W. Shimmins, the engineer and surveyor, it would appear that the city may have its own airport within the next twelve months. Purchases have been made and options obtained on quite a lot of land beside the existing racecourse, and the fact that, even now, the tee-shaped site is usable was shown last Friday, though, on first sight, the runs appeared to be inadequate when the boundary obstructions were taken into consideration.

For the Three Counties Air Race there was certainly an extraordinarily good entry, some score of machines appearing on the line for the start, including one or two of those owned by our better-known racing pilots, and such larger types as a Monospar S.T. 25, flown by Mr. Seth-Smith, and a D.H. Dragonfly, flown by Mr. S. F. Woods for Mr. S. Harris. Every machine got off with plenty of room to spare and the only unpleasant moment occurred when a certain very experienced pilot carried away a few telephone wires on his arrival. Although roomy enough, the ground was a trifle rough at the end of the run and the most interesting sight of the afternoon was that provided by a score of pilots vying with each other in the work of making the shortest possible landing over obstructions. Some of these were incredibly short and showed what *could* be done—with care.

The whole affair was run on most informal lines. The course consisted of three laps of a not-too-easy thirty-mile circuit, and the pilots were handicapped on their own estimated speeds, anyone exceeding this speed being disqualified. The Rev. Cecil Boulton (Spartan) was the limit man and W. Humble (Hawk Six) was on scratch.

Changing Positions

Even after the first lap the placings had obviously altered considerably, though it was difficult to follow the race. After two laps all manner of things had occurred. R. F. Hall (Avro Cadet) had worked up from eleventh place, through ninth place, to the lead; the Misses Glass (D.H. Moth) had moved from fourth to second; and the Spartan was flying fourth. Humble was not yet in the picture, though he had picked up two or three places, the Monospar was running twelfth after starting in fifteenth position, and S. T. Lowe (Comper Swift) had moved from sixteenth to eleventh.

The finishing order of the leaders was as follows: 1, R. F. Hall (Avro Cadet), 45 min. 34 sec.; 2, Miss Mabel Glass (D.H. Moth), 48 min. 6 sec.; 3, A. F. E. Payen (D.H. Puss Moth), 45 min. 14 sec.; 4, P. D. Hayn (D.H. Moth) and S. T. Lowe (Comper Swift); 5, C. H. Tutt (D. H. Moth); 6, K. G. Seth-Smith (Monospar).

Thereafter, pilots and others adjourned for further informal proceedings at the City Arms Hotel.

Real racing: The scratch man, W. Humble (Hawk Six), truly vertical as he rounds the grandstand turn at Hereford. He averaged 184 m.p.h. over the ninety-mile course. (*Flight* photograph.)

An Eastbourne Occasion

ON Saturday of last week more than seventy members of the Eastbourne Flying Club attended a little party at which the Club made a presentation to Capt. E. I. Short, its energetic secretary, in particular for his work in organising and running the "At Home" on August 15.

After an introduction by the acting chairman, the Rev. Postance, Mr. Hore-Belisha, in an apt and amusing speech, thanked Capt. Short for his efforts in Eastbourne.

On Hereford's racecourse with the grandstand in the background. The second line of competing machines is flagged off. The telegraph wires are behind them! Another *Flight* photograph appears on page 309.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS — AIR MINISTRY ANNOUNCEMENTS

SIR P. SASSOON'S TOUR

Sir Philip Sassoon, Under Secretary for Air, will leave England on September 25 for an inspection of the Air Force stations in Egypt, the Sudan and Nairobi. He will be away for three weeks.

FORMATION OF NEW SQUADRONS

No. 46 (Fighter) Squadron formed at Kenley on September 3 and is placed under the command of the A.O.C.-in-C., Fighter Command, in No. 11 (Fighter) Group.

No. 139 (Bomber) Squadron formed at Wyton on September 3, 1936. The unit is being equipped with medium bomber type of aircraft and has been placed under the command of the A.O.C.-in-C., Bomber Command, in No. 3 (Bomber) Group.

No. 220 (General Reconnaissance) Squadron formed at Bircham Newton on August 17, 1936. The unit is being equipped with general reconnaissance type of aircraft and has been placed in the Coastal Command.

R.A.F. STATION, ANDOVER

The R.A.F. Station, Andover, together with the following units, will be transferred to No. 2 (Bomber) Group with effect from October 6, 1936:—

Station Headquarters.
Station Flight.
No. 12 (Bomber) Squadron.
No. 103 (Bomber) Squadron.
No. 107 (Bomber) Squadron.
No. 142 (Bomber) Squadron.
Royal Air Force Staff College.

STATIONS OCCUPIED BY A.A.F. UNITS

Auxiliary Air Force squadrons are normally closed down on Tuesdays and Wednesdays. Aircraft are not to land, on those days, except in emergency, at any aerodrome at which an A.A.F. unit is the only service occupant.

MOVES OF SQUADRONS

The following moves took place at the end of August:—No. 35 (Bomber) Squadron, Bircham Newton, to Worthy Down, in No. 2 (Bomber) Group; No. 41 (Fighter) Squadron, Northolt to Catterick, in No. 11 (Fighter) Group; No. 64 (Fighter) Squadron, Henlow to Martlesham, in No. 11 (Fighter) Group; No. 207 (Bomber) Squadron, Bircham Newton to Worthy Down, in No. 2 (Bomber) Group.

NAVAL AIR DIVISION

Cdr. C. B. Tidd joined the staff of the Naval Air Division at the Admiralty on September 15, to succeed Cdr. E. M. C. Abel-Smith. Both officers hold rank as squadron leader, R.A.F. Cdr. Tidd qualified as a pilot in the Fleet Air Arm in 1924, and obtained command of a squadron in the aircraft-carrier *Glorious* in 1933.

R.A.F. HOCKEY ASSOCIATION

The annual general meeting of the R.A.F. Hockey Association will be held on Friday, September 25, at 1500 hours in Room 374, Air Ministry.

ARMAMENT OFFICERS' BOMBING TROPHY

The R.A.F. Armament Officers' Bombing Trophy, presented for competition by the officers attending the long armament course in 1930, has this year been won by No. 57 (Bomber) Squadron, stationed at Upper Heyford. The trophy is competed for annually by light and medium bomber squadrons of the Metropolitan Air Force, and is awarded to the squadron obtaining collectively the highest degree of accuracy in a bombing classification exercise under conditions laid down by the Air Officer Commanding-in-Chief, Bomber Command.

Since the inception of the competition there has been each year a steady improvement in the assessment figures obtained by squadrons, and the improved results obtained by No. 57 (Bomber) Squadron this year are all the more creditable in view of the difficulties imposed by the expansion scheme.

ROYAL AIR FORCE GAZETTE

London Gazette, September 15, 1936

General Duties Branch

The following Flight Lieutenants are granted permanent commissions in this rank, July 7:—B. A. Casey, R. B. Harrison, W. H. Husbands, J. J. Murphy, C. G. Skinner, C. H. Smith. Capt. C. I. A. Jackson (Royal Tank Corps) is granted temporary commission as Flight Lieutenant, on being re-seconded for duty with R.A.F., with effect July 26, and seniority January 12.

The following Flight Cadets, having successfully passed through R.A.F. College, Cranwell, are granted permanent commissions as Pilot Officers with effect and seniority of August 1:—D. A. Kerr, W. I. C. Inness, V. C. Darling, E. Culverwell, G. Burges, R. P. M. Gibbs, J. R. Fishwick, A. M. Bentley, W. P. Shand, P. B. Chamberlain, W. H. Ingle, R. P. R. Powell, P. E. Warcup, P. M. Astley, J. H. Humphris, J. B. Tait, P. S. Jolliffe, A. M. K. Phillips, O. Godfrey, R. J. M. Bangay, M. G. Stevenson, O. J. M. Barron, J. W. Fordham, D. G. Bell, H. R. Goodman, C. D. S. Smith.

The following are granted short service commissions as Pilot Officers for five years on active list with effect and seniority of August 21: H. C. Daish, H. I. Edwards, T. F. Harvey, A. L. Pitfield, A. F. M. Sisley, R. A. McL. Watson, W. C. Williams.

The following are granted short service commissions as Acting Pilot Officers on probation with effect and seniority of August 24, 1936: P. G. Abercromby, C. H. Ancil, H. T. J. Anderson, H. E. Angell, K. F. Arnold, D. P. Bamber, R. Baron, L. N. Barker-Simson, G. C. C. Bartlett, A. W. A. Bayne, M. L. ff. Beytagh, K. W. C. Bindloss, J. R. M. Boothby, J. C. Burge, K. T. B. Burns, S. E. Bussey, M. J. Casey, J. T. I. Challes, J. D. D. Collier, P. M. Compston, J. A. H. Cooper, P. L. Dakeyne, K. H. V. Day, R. C. Dundas, R. G. Dutton, J. P. Dyer, P. Edwards, V. H. Furlong, C. E. A. Garton, G. V. Gordon, H. D. Green, A. G. Griffin, K. T. A. Harvey, R. R. Helsby, E. J. Hetherington, A. W. Heward, A. J. Hudson, F. N. Hughes, C. P. Igglesden, P. H. Jackson, R. J. Kelsey, T. G. Kirby-Green, S. A. Levenson, D. W. Lindsay, G. L. Malcomson, A. H. McLaren, H. W. McMillan, C. H. Milton, L. C. Mitchell, M. J. S. Newman, F. O'Driscoll, M. T. St. J. Pattle, J. G. H. Potter, D. C. Pritchard, S. L. Ring, D. A. Robertson, P. C. Rolls, B. T. Scott, M. O. Scott, E. J. Sheeran, R. W. Stanway, J. D. Stephens, A. E. Thompson, N. W. Timmerman, W. A. Toyne, R. P. Wallace-Tarry, R. G. Wheldon, D. White, O. L. Williams, E. A. Williamson, H. F. Wood.

Pilot Officer on probation P. A. M. Stickney is confirmed in rank August 31. The following Flying Officers are promoted to rank of Flight Lieutenant with effect from the dates stated:—July 9: G. W. Heather. August 4: A. N. Spottiswoode. August 28: J. R. Talbot, G. E. Watt.

The following Pilot Officers are promoted to rank of Flying Officer with effect from dates stated:—June 15: G. J. Wright. August 7: W. N. Stubbs. Flt. Lt. M. V. Gibbon is transferred to Reserve Class A, August 20. Flt. Lt. W. F. Lovering is transferred to Reserve Class A, August 20. F/O. E. M. Lewis is transferred to Reserve Class A, August 29. The short service commissions of the following Acting Pilot Officers on probation are terminated on cessation of duty on dates stated:—August 23: R. Cluer. August 27: G. H. E. Kingcome. August 28: P. F. E. Elstov, D. M. Hewson. September 2: P. W. Lillie.

Medical Branch

The following Flight Lieutenants are granted permanent commissions in that rank, September 4: L. S. Everett, M.R.C.S., L.R.C.P. G. Gilchrist, M.B., B.S. Flt. Lt. T. W. Wilson, L.R.C.P., and S. (R.A.F., ret.), is reinstated on active list as Flight Lieutenant with effect from July 27, 1936, and seniority of August 20, 1928. Flt. Lt. C. W. Coffey, L.R.C.P. and S., is promoted to rank of Squadron Leader, August 24.

Chaplains Branch

Rev. R. S. Wilkie is granted a short service commission with relative rank of Squadron Leader with effect and seniority of August 19. Rev. W. P. Hughes, L.Th., is granted acting relative rank of Wing Commander, whilst acting as Senior Chaplain in present posting, August 18.

Miscellaneous

Flt. Lt. R. P. O'Donnell, M.V.O., is promoted to rank of Squadron Leader, August 2.

Memorandum

The permission granted to Lt. C. W. Lewis to retain rank is withdrawn on enlistment into Territorial Army, July 8.

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

Capt. H. P. S. Clogstoun, M.B.E., is granted commission as Flight Lieutenant in Class C, July 20. The following are transferred from Class A to Class C on dates stated:—September 16: Sqn. Ldr. J. L. N. Bennett-Baggs. September 1: Flt. Lt. W. C. Venmore; F/O. C. W. F. Carter is transferred from Class C to Class A, August 25. The notification in *Gazette* of September 24, 1935, concerning F/O. L. G. A. Kirchner is cancelled.

Medical Branch

E. A. Mayston, M.R.C.S., L.R.C.P., is granted commission as Flying Officer in Class DD, July 24.

SPECIAL RESERVE

General Duties Branch

P/O. G. L. M. Malcomson relinquishes commission on appointment to short service commission in R.A.F., August 24. The following resign commissions on dates stated consequent on conversion of Special Reserve to the Auxiliary Air Force: F/O. C. W. Rees, May 1; F/O. H. F. Remnant, May 25; F/O. J. H. Smith, May 1, 1936; P/O. J. S. Bell, May 1, 1936; P/O. M. P. Forte, May 1, 1936; P/O. J. S. F. Hood, May 1, 1936.

AUXILIARY AIR FORCE

General Duties Branch

No. 500 (COUNTY OF KENT) (BOMBER) SQUADRON.—F/O. H. F. Remnant is granted commission in that rank with effect May 25 and seniority September 30, 1935.

No. 501 (COUNTY OF GLOUCESTER) (BOMBER) SQUADRON.—E. S. Williams is granted commission as Pilot Officer, July 19.

No. 503 (COUNTY OF LINCOLN) (BOMBER) SQUADRON.—The following are granted commissions as Flying Officers with effect May 1 and seniority of dates shown: C. W. Rees, August 18, 1935; J. H. Smith, April 18, 1935. The following are granted commissions as Pilot Officers with effect May 1 and seniority of dates shown: J. S. Bell, April 22, 1935; M. P. Forte, August 10, 1935; J. S. F. Hood, May 14, 1935.

No. 601 (COUNTY OF LONDON) (FIGHTER) SQUADRON.—F/O. R. J. Bushell is promoted to rank of Flight Lieutenant, July 26. C. A. Lee-Steere is granted commission as Pilot Officer, July 31.

No. 602 (CITY OF GLASGOW) (BOMBER) SQUADRON.—P. J. Ferguson is granted commission as Pilot Officer, July 16.

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—F/O. (Hon. Flt. Lt.) J. L. Jack, M.B.E., M.C., is promoted to rank of Flight Lieutenant, August 17.

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—F/O. N. E. Partridge resigns commission, May 17.

Medical Branch

No. 604 (COUNTY OF MIDDLESEX) (FIGHTER) SQUADRON.—W. D. Coltart, M.B., B.S., F.R.C.S., L.R.C.P., is granted commission as Flying Officer, August 1.

AUXILIARY AIR FORCE RESERVE OF OFFICERS

General Duties Branch

N. E. Partridge is granted commission as Flying Officer in Class A, May 17.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodore.—D. C. S. Evill, D.S.C., A.F.C., to Headquarters, Bomber Command, Uxbridge; for duty as Senior Air Staff Officer, 10.9.36.

Group Captain.—L. L. MacLean, to Headquarters, No. 3 (Bomber) Group, Andover; for duty as Senior Air Staff Officer vice Group Capt. C. O. F. Modin, D.S.C., 8.9.36.

Wing Commanders.—C. T. Anderson, D.F.C., to R.A.F. Station, Hucknall; to command, 8.9.36. H. G. Crowe, M.C., to D. of O., Dept. of A.M.S.O., Air Ministry, vice Wing Cdr. F. J. Linnell, O.B.E., 10.9.36. A. N. Gallehawk, A.F.C., to R.A.F. Station, Finningley; to command, 21.8.36.

Squadron Leaders.—H. L. Macro, D.F.C., A.F.C., to R.A.F. Station, Donibristle; for flying duties, 1.9.36. C. E. Williamson-Jones, D.F.C., to Headquarters, Bomber Command, Uxbridge; for Equipment (Engineer) Staff duties vice Sqn. Ldr. C. H. Potts, D.S.M., 10.9.36. G. H. Harrison, D.F.C., to School of Air Navigation, Manston; for Navigation duties vice Wing Cdr. P. D. Robertson, A.M., 10.9.36. M. H. Garnons-Williams, to R.A.F. College, Cranwell; for flying duties in the Advanced Flying Squadron, 10.9.36.

Flight Lieutenants.—G. D. Harvey, D.F.C., to D. of T., Dept. of A.M.P., Air Ministry, 8.9.36. C. Ryley, to R.A.F. Station, Finningley, 8.9.36. A. C. Evans-Evans, to R.A.F. Station, Wyton, 7.9.36. J. R. Whitley, to Headquarters, R.A.F., India, Simla, 16.8.36. G. Farnhill, to No. 8 (B) Squadron, Aden, 1.8.36. A. King-Lewis, to R.A.F. College, Cranwell, 9.9.36 D. B. D. Field, to No. 5 Flying Training School, Sealand, 8.9.36. M. F. Calder, to No. 46 (F) Squadron, Kenley, 3.9.36.

Flying Officers.—T. B. Morton, to No. 218 (B) Squadron, Upper Heyford, 7.9.36. R. E. Curry, to No. 8 (B) Squadron, Aden, 1.8.36.

Pilot Officers.—J. W. Dallamore and J. A. G. Gordon, to No. 7 Flying Training School, Peterborough, 22.8.36. J. A. Field and J. A. Richards, to No. 8 (B) Squadron, Aden, 10.8.36.

The undermentioned are posted to the Units shown on appointment to permanent commissions from the Royal Air Force College, Cranwell, with effect from 1.8.36:—R. J. M. Bangay, to No. 102 (B) Squadron, Finningley. J. R. Fishwick, to No. 49 (B) Squadron, Worthy Down. H. R. Goodman, to No. 57 (B) Squadron, Upper Heyford. R. P. M. Gibbs, to No. 98 (B) Squadron, Hucknall. P. S. Jolliffe, to No. 104 (B) Squadron, Hucknall. E. Culverwell, to No. 218 (B) Squadron, Upper Heyford. J. B. Tait, to No. 10 (B) Squadron, Boscombe Down. D. A. Kerr, to No. 99 (B) Squadron, Mildenhall. J. W. Fordham, to No. 215 (B) Squadron, Driffield. W. P. Shand, to No. 1 (F) Squadron, Tangmere. A. M. K. Phillips, to No. 17 (F) Squadron, Kenley. A. M. Bentley, to No. 43 (F) Squadron, Tangmere. P. E. Warcup, to No. 54 (F) Squadron, Hornchurch. R. P. B. Powell, to No. 111 (F) Squadron, Northolt. P. B. Chamberlain, D. Greville Bell, O. Godfrey, M. G. Stevenson and W. I. C. Inness, to School of Army Co-operation, Old Sarum. J. H. Humphris, V. G. Darling, and O. J. M. Barron, to R.A.F. Station, Gosport. P. M. Astley, G. Burges, W. H. Ingle, and C. D. S. Smith, to School of Air Navigation, Manston.

Acting Pilot Officers.—The undermentioned are posted to No. 3 Flying Training School, Grantham, with effect from 22.8.36:—C. L. G. Back, M. V. Baxter, T. H. Clarke, R. M. Cowell, C. G. H. Crusoe, J. G. P. Greenwood, F. C. Griffiths, R. H. Hain, J. R. Havers, E. Holden, A. E. Hyde-Parker, G. C. Kain, D. F. Laslett, G. W. De. V. Le Sueur, H. J. Lyon, R. E. G. Morewood, B. A. Mortimer, C. T. Norman, E. J. Palmer, L. H. W. Parkin, H. B. M. Pearson, C. D. W. Price, G. L. M. Schrader, W. A. Sykes, D. G. Tomlinson, H. C. Tootal, R. G. M. Walker, E. A. Warfield, R. F. Weatherill, and M. Wyatt.

J. A. F. Mertens, to No. 5 Flying Training School, Sealand, on appointment to a short service commission as Acting Pilot Officer (on probation) with effect from 31.8.36. G. B. Andrews, P. P. Hanks, to No. 1 (F) Squadron, Tangmere, 31.8.36. E. G. Jones, to No. 17 (F) Squadron, Kenley, 31.8.36. D. G. Warren, to No. 18 (B) Squadron, Bircham Newton, 31.8.36. W. M. Penman, to No. 19 (F) Squadron, Duxford, 31.8.36. P. W. Hartley, K. M. McCrudden, to No. 21 (B) Squadron, Abbotsinch, 31.8.36. C. L. C. Roberts, R. N. Todd-White, to No. 25 (F) Squadron, Hawkinge, 31.8.36. F. Harrison, R. P. S. Wyrill, to No. 34 (B) Squadron, Abbotsinch, 31.8.36. C. E. Levitt, to No. 40 (B) Squadron, Abingdon, 31.8.36. J. Foulsham, T. M. Hunt, to No. 57 (B) Squadron, Upper Heyford, 31.8.36. D. R. Biggs, G. L. B. Hull, P. G. Keeble, to No. 101 (B) Squadron, Bicester, 31.8.36. J. L. Atkinson, J. Barret, J. B. Burnett, A. E. Williamson, to School of Air Navigation, Manston, 31.8.36 W. O. L. Smith, to School of Army Co-operation, Old Sarum, 31.8.36. D. B. M. Wright, to R.A.F. Station, Gosport, 31.8.36. J. T. Webster, and L. C. Jones-Bateman, to No. 46 (F) Squadron, Kenley, 3.9.36. F. W. Thomas, to No. 10 (B) Squadron, Boscombe Down, 31.8.36. J. Compton, to No. 18 (B) Squadron, Bircham Newton, 31.8.36. D. I. McLeod and L. V. E. Petley, to No. 21 (B) Squadron, Abbotsinch, 31.8.36. P. E. G. G. Connolly and H. C. Maudslay, to No. 32 (F) Squadron, Biggin Hill, 31.8.36. N. D. Guthrie, to No. 34 (B) Squadron, Abbotsinch, 31.8.36. T. E. J. Fitton and A. R. L. Griffiths, to No. 43 (F) Squadron, Tangmere, 31.8.36. M. C. F. Mee, to No. 54 (F) Squadron, Hornchurch, 31.8.36. H. J. Garlick and D. Kain, to No. 56 (F) Squadron, North Weald, 31.8.36. G. D. Evers and W. G. Lockhart, to No. 65 (F) Squadron, Hornchurch, 31.8.36. J. E. J. Sing, to No. 111 (F) Squadron, Northolt, 31.8.36. A. V. Rogers, to No. 218 (B) Squadron, Upper Heyford, 31.8.36. N. A. F. Cheesman, J. H. Irvin, J. P. Owens, J. P. S. Smyth, A. C. R. Thompson, and A. L. Womersley, to School of Air Navigation, Manston, 31.8.36.

The undermentioned are posted to the R.A.F. Depot, Uxbridge, on appointment to short service commissions as Acting Pilot Officers (on probation) with effect from 24.8.36:—H. T. J. Anderson, K. F. Arnold, D. P. Bamber, A. W. A. Bayne, R. C. Dundas, K. T. A. Harvey, P. H. Jackson, S. A. Levenson, D. W. Lindsay, A. H. McLaren, M. J. S. Newman, D. C. Pritchard, R. P. Wallace-Tarry, J. R. M. Boothby, J. T. I. Challes, A. G. Griffin, E. J. Hetherington, L. C. Mitchell, D. A. Robertson, E. J. Sheeran, R. W. Stanway, A. E. Thompson, N. W. Timmerman, R. G. Wheldon, D. White, O. L. Williams, R. R. Helsby, M. T. St. J. Pattle, P. G. Abercromby, R. Baron, W. A. Toyne, H. F. Wood, J. P. Dyer, L. N. Barker-Simson, J. A. H. Cooper, P. L. Dakeyne, K. H. V. Day, F. N. Hughes, R. J. R. J. Kelsey, F. O'Driscoll, B. T. Scott, and J. D. Stephens.

Stores Branch

Flight Lieutenant.—C. L. Gilbert, to R.A.F. Station, Mildenhall, 2.9.36.

Flying Officer.—A. E. Harbot, M.B.E., to Home Aircraft Depot, Henlow, 14.9.36.

Pilot Officer.—R. F. Folley, to No. 2 (Army Co-operation) Squadron, Hawkinge, 8.9.36.

Medical Branch

Squadron Leader.—F. E. Johnson, to No. 10 Flying Training School, Tern Hill; for duty as Medical Officer, 10.9.36.

Private Flying

Topics of the Day

Trainer Simplicity

WHILE reading my comments after they had gone to press last week, it occurred to me that another feature of the perfect primary trainer might also have been mentioned—control simplicity. Since aeroplanes of all types are becoming a little more complicated year by year, there may be something to be said for letting the pupil know the worst, so to speak, from the very start; but most instructors, I think, will agree that for the first five or ten hours' flying the pupil has quite enough to look after with the three essential controls. A multiplicity of gadgets and instruments will merely worry him, even though the majority of these need not be touched or even looked at until the pupil is quite ready to look after them.

During the first few hours of my own training period in a Cirrus I Moth I was not encouraged to bother with the cheese-cutter. In any case, the machine had only four instruments apart from the compass (which was a closed book to me), and, of course, had no wheel brakes, air brakes, or even an altitude control. Until I had become accustomed to the air and had learnt to do tolerably accurate circuits, my right hand remained permanently in position on the stick, my left hand on the throttle, and my eyes on the world outside—for I watched the strut speed indicator rather than the dial inside the cockpit, thereby reducing the number of changes in optical focus.

Stage by Stage

WHEN, after twenty hours in the air, I graduated, by virtue of a necessary change of flying base, to Cadets, the new gadgets proved to be a source of interest rather than of worry. It was amusing to be able to use wheel brakes, to have a wheel-type trimmer and to hoist myself up and down by means of a handle on my right—though once, while attempting to check the position of the brake lever during the last phase of an approach I used the wrong hand and let myself down, and once I forgot to release the brakes before opening up.

The ideal club equipment, therefore, would appear to consist of two primary trainers stripped of every unnecessary gadget, possessed of viceless flying features, an undercarriage with eighteen inches of movement, a perfect view and, if possible, a virtually unchanging fore-and-aft trim; two advanced trainers fit, in every way, for aerobatic work, with parachute seats *and* parachutes; and two or more cabin types for cross-country and week-end flying by the more experienced members. These last types, of course, could always be used for occasional charter work.

With a fleet of this kind a club would be able to obtain its necessary "A" licences quickly and easily, while the multiplicity of types would encourage every member to persist with his or her flying so as to be permitted to "go off" on the more advanced and interesting machines as the log-book was filled up.

Safety First

WITHOUT mincing words, there have been far too many crashes by private pilots during the past year. Apart from the regrettable loss of life, these crashes provide front-page news, and are, consequently, thoroughly bad for the whole movement.

So far as I know, not one of them had been caused by structural failure in the air, so all must be put down to direct or indirect errors of judgment, and it behoves all pilots who do any thinking at all to be more careful. It is just as much an error of judgment to run into bad weather or to fail, through lack of height, to pull off a forced landing after an engine failure as it is to stall into the ground while making a final gliding turn. There is no real excuse for any of it.

Our Service pilots must necessarily fly more dangerously, and our transport pilots may fly occasionally in weather which turns out to be just too bad for the equipment and the operational experience of the crew. Accidents to the former must be expected, and occasional accidents to the latter are part of the inevitable price of transport progress; each is doing a useful job of work. But the private pilot can choose his weather, his machine, and the risks he takes or does not take; at present, in his enthusiasm, he is taking too many of them.

Significant Facts

NOBODY will suggest for a moment that we should refuse to take any risks at all. It would be a poor breed of men and women which did not take them in the interests of progress or even of sport.

Motor racing and air racing are only good because the competitors are pitting their skill against those risks, and I consider, for instance, that the two competitors in the Hereford race, who were also flying in the Cardiff event, were fully justified in taking some chances in getting back to Heston for the second race when the weather was really too bad for cross-country work without radio. Equally justified were the other less experienced competitors who put down on the way to Heston and "gave in."

It is more than significant, however, that the number of air-racing accidents, in this country at any rate, has been almost negligible, and for this fact there can be only one complete explanation. Knowing the risks, the pilots are keyed up and ready for any eventuality.

The club flying record, too, is a fairly good one, because club pilots are consistently watched by instructors and are not allowed to take a machine away unless the weather reports justify such an action. Furthermore, they are usually unable to shirk a little refresher dual from time to time, while the private owner is as free to develop flying faults as he is to neglect such things as forced-landing practice.

You cannot play the fool with an aeroplane.

INDICATOR.

Private Flying

FROM the CLUBS

Events and Activity at the Clubs and Schools

NEWCASTLE

POOR weather did not prevent 52 hr. 15 min. flying during the week ending September 19. Messrs. J. G. Wilkes and R. E. Peterson have completed their "A" licence tests.

REDHILL

For the week ending Friday, September 18, flying time was 72 hr. 10 min. Mrs. Branson passed her "A" licence tests. There are two new flying members.

PORTSMOUTH

Although the weather was unsettled, 41 hr. 5 min. flying was logged during the week ending September 8. Mrs. M. B. Satchell and Messrs. F. C. H. Allen and N. W. Prangnell became members, and Mr. R. C. Manocha went solo.

DONCASTER

A "dawn patrol" will be held at the Airport on Sunday, September 27. Club machines flew 15 hr. 15 min. during the week ending September 18, and Miss E. M. James, the Rev. L. Gallon, and Messrs. G. M. Badley, I. G. F. Harris, and J. E. B. Hughes became members.

YAPTON

A night-flying Moth is now available. New members are Messrs. E. Munch and S. C. Moitra, both of whom intend to take the "A" licence. Mrs. M. Irwin is also training for the "A" and Mr. Frank Miller has gone solo. Flying times for the month to the 19th totalled 68 hr. 15 min.

MIDLAND

Mrs. M. E. Ginder and Messrs. A. E. Anger and D. G. Vaughan have become members and Dr. J. T. Linklater has passed his "A" licence tests, while Messrs. S. Edge, N. R. Gill and W. H. Lord have gone solo. Last week's flying times were 22 hr. dual and 15 hr. 45 min. solo and passenger.

LONDON

Last week's flying time was 129 hr. 5 min. First solos were made by Messrs. J. H. Kestin, C. P. Fox and J. Waters. Mr. T. V. G. Blanks completed the tests for his "A" licence. New members are Mrs. Good, Mrs. Rowley, Miss Shearer, Messrs. J. Hesketh, O. Gibbons, H. W. Miller and H. Deen.

YORKSHIRE

Club flying last week totalled 67 hr. 20 min. Mr. J. Shoesmith visited Yeadon in the Hillson Praga and Mr. W. Marshall passed his "A" licence tests. Miss A. M. Walker has become a flying member and Mr. and Mrs. J. H. Fulford are associate members. Messrs. R. Townsend, H. Longley and T. J. Whincup have joined the Aviation Group.

BORDER

Viscount Swinton, the Secretary of State for Air, accompanied by the Earl and Countess of Carlisle, Brig.-Gen. Spears, M.P., the Mayor and Mayoress of Carlisle, and a number of prominent citizens visited the aerodrome last Sunday. Lord Swinton and Lady Carlisle flew in the Club's Hornet and were greatly impressed. Mr. Pattinson has completed his "A" licence tests, and Messrs. Taylor and Pamment have become members.

LYMPNE

In spite of the shorter daylight period, flying time last week totalled 81 hr., which included 1 hr. 30 min. dual night-flying instruction and two subsequent night flights from Croydon to Lympne undertaken by "B" licence aspirants. Mr. Merrick Hymans, after having passed his "B" licence tests, has decided to take his instructor's licence. Mr. and Mrs. W. E. Davis are soon to leave for America, where they intend to visit as many aerodromes and aircraft factories as they can. Visitors last week included Mr. H. C. MacPhail, of General Aircraft, fog-bound on his way to Bucharest, and Capt. Walters, of the South African Vacuum Oil Co., outward bound on a Dragonfly.

BROOKLANDS

The landing competition held on Sunday, the 13th, proved very popular and was won by Mr. C. Roberts with Messrs. J. S. Machin and E. A. Parker second and third respectively. Mr. Rod Banks, disappointed in his last effort at the height test, succeeded in getting one of the Club Tigers up to 20,500 ft. On Friday a party of thirty members of the Junior South Coast Flying Instructional Club visited Brooklands for a tour of the aerodrome and College of Aeronautical Engineering. Mr. Kenneth Firth has taken delivery of Sir William Firth's new Dragonfly. The sales department has also sold a machine to Mr. Dick Beaumont. New members last week included Miss Frielander, and Viscount Suirdale and his brother, the Hon. Hely-Hutchinson. Messrs. R. Lock and A. R. Bannister have started instruction.

LIVERPOOL

The total flying time for the month to the 19th was 77 hr. 40 min., in spite of high winds, rain and bad visibility.

C. A. S. C.

On Saturday, September 12, four members were on duty at Hatfield for the Garden Party, and on Sunday eight went to Hanworth. Members who attended at Cambridge flew 6 hr. 25 min.

NOTTINGHAM

The flying time for the week ending September 17 was 29 hours. Messrs. Lees, Simkins, Dowson, Bradley and Bissill made cross-country flights to Waltham, Wittering, Skegness and Worcester. Mr. A. G. S. Anderson made his first solo flight. Thirty machines visited Tollerton during the week.

HANWORTH

Sixty-one hours thirty-five minutes' flying was recorded last week. Mr. P. Dayrell and Mr. Kennedy, both of the Royal Naval Flying Club, became members, and Mr. M. Wainwright, of the National League of Airmen, went solo. Lt. Kingswell, of the R.A.S.C., is housing his new B.A. Swallow in the Club hangar. The Club has acquired another Aeronca, which will shortly be available for hire. The Garden Party is dealt with elsewhere in this issue.

ABRIDGE

The aerodrome is now open and operations have commenced. Mr. E. H. Elliott is chief instructor and Mr. D. J. Adie is the ground engineer. New members are Mrs. and Miss Lellow, and Messrs. Bellamy, Davies, Lestrange, Miller Wright, Tarlon, Horton, Reece, Sweetingham, Tupper, Wallace, Gosford, Butler, Bell, Palmer and Padfield. The Klemm, owned by the Ilford Aviation Co., Ltd., has arrived, and Major Cooper's Autogiro, a Moth and a Tipsy are expected shortly.

SCOTTISH

At the beginning of August members returned to a redecorated clubhouse. In spite of unfavourable weather during the early part of the month, 328 hours' flying were recorded and two first solos made. The Mobiloil Cup race, after being postponed, was flown on June 13, resulting in a win for Mr. R. F. Boyd, with Mr. George Ross a good second. During the past six weeks there have been several S O S s for the company's air ambulance. The longest journey entailed a flight to Loch Maddy, North Uist.

HULL

Club machines flew 244 hr. 15 min. during August, easily constituting a record. During that month Mr. L. Park went solo and "A" licences were gained by Messrs. Hodge, G. D. Sleight, A. E. Purdy, and E. D. Goschalk. Poor visibility made it undesirable to fly the competition for Mr. E. G. Croskin's Cup last Sunday week. The last "dawn patrol" was attended by twenty-four machines from seven different clubs. The Super Drone will be demonstrated on Sunday, September 27.

A. S. T.

August was marked by visits from overseas officials who have come to Hamble to inspect the training methods and meet the students from their particular countries. Mr. M. Roushdy, the Sub-Director of the Civil Aviation Dept., Egypt, and, on another occasion, Mr. Lafone, the managing director of Misr Airwork, England, accompanied by Mr. Mamal Eloui, the managing director of Misr Airwork, Egypt, paid visits to the five Egyptian students under instruction. Mr. G. Fisher, Superintendent of the Cape Town Airport, also paid a visit to inspect the training methods and saw the five South African students. Thirteen students arrived for the new term on September 1, when the Long Commercial and Ground Engineering Courses commenced. Some of them are from France, Hungary, Holland, and Canada. New pupils last month comprised Mr. Engel, of France, who took a course of advanced flying; Mr. Fairbairn, of Australia, who had dual instruction on his Dragonfly and the school Tutor and 626 aircraft, Mr. O. Hamdi, an Egyptian Government student, who is taking a three-months' course, and Lieut. A. Maculan, of the Austrian (Royal) Air Force. Dr. Hewer also joined for training for the renewal of his "A" pilot's licence. Information was received that five Hamble pupils passed the Air Ministry 2nd-class navigators' examination in July. Messrs. Austin and Perkins obtained their ground engineers' licences, and Mr. Kathuria, of India, now holds the A, C, D, and X ground engineers' licences and the P.M.G.'s W/T air operators' licence. Eight "A" pilots' licences were obtained, while "B" pilots' licences were taken by Mr. Lasnausky, of Austria, Messrs. Ismail and Tata, of India, and Messrs. Keep and Nicholson. Captain R. D. Hog, an ex-A.S.T. student, has been engaged as a second assistant to the chief ground instructor. The flying time for August was 1,664 hours, and, had it not been for the civilian leave period, it is most likely that the existing record of 1,756 hours would have been beaten.

BRISTOL AND WESSEX

The flying hours for week ending September 19 were 25 hr. 35 min., and three new members joined—Messrs. A. W. Baker, E. Jones, and W. W. Hubble. Mr. A. W. Baker is known to practically all Bristolians as "Old Baker," and has been dealing in motor spares since the early pioneer days. Has now decided that motoring is bound to give way to aviation, and, although not a young man, is intent on obtaining an "A" licence.

NORFOLK AND NORWICH

Thirty-three flying hours were compiled by members during the past week and Mr. A. J. Anderson has joined as flying member. Mr. F. G. King passed the tests for his licence. Mr. Giles Guthrie, whose Vega Gull was the winner in the King's race, took one of the Club Moths to Portsmouth, where his Vega Gull is being prepared for the England-Johannesburg race.

It is with deep regret that the Club announces the death, in a flying accident, of Mr. Maurice Edward King, a director of the Club, and a member of the Flying Committee. Probably few pilots had such an intense love of flying as he had. He always undertook more than his share in the Club's task of making the public air-minded, and he has probably given free joy-rides to some hundred or more local citizens.

Realism

"The Flying Shadow," by John Llewelyn Rhys. Faber and Faber, 7s. 6d.

YOU will enjoy this first novel. It tells the tale of an instructor's day-to-day existence in a very typical club (though Mr. Rhys has very cleverly camouflaged the identity of the one on which, in spite of disclaimers, he must have based his story) and it is emphatically a book for flying people. The author has gone so far as to volunteer an occasional asterisk and footnote for the benefit of the uninitiated, but probably does not realise that 75 per cent. of the book would still be triple Dutch to them; which is as it ought to be, and is the reason why so many American flying stories, and so few English, are realistic.

Here is a typical sample, from a page chosen at random:—

> Half a mile away the Tiger Moth was looping. That would be young Brown. The young fool had one wing down as he came over the top, due to the way in which he misused his rudder. It would be a lot better for Mr. Brown, he thought, if he tried to polish up his forced landings instead of messing about in an attempt to do aerobatics. This girl was going to be all right. She was very nervous, but the nervous ones made good pilots. To-day they would do more straight and level flying and then climbing and gliding and stalling. After that, back to the aerodrome for Bearing, who was to do blind take-offs. He leaned forward, putting his mouth against the green rubber mouthpiece. "That was quite good for a first attempt. But you're holding the controls much too stiffly. Hold the stick with your fingers and relax the muscles of your forearm, put your heels on the floor of the cockpit. Sit more easily in your seat. You're making the mistake of trying to fly the machine instead of letting her fly herself. When she's trimmed with the cheese-cutter, I showed it you, it's under your left hand, she'll practically fly hands off. The last thing. When you move the stick, don't look down at it. You don't look at the gear lever when you're changing gear, do you? Keep looking at the nose of the 'plane or looking at a wing to see if it's level, or about the sky for other aircraft."

What would the average novel reader make of blind take-offs and the cheese-cutter?

Mr. Rhys also paints some cruelly accurate pictures of the types of people who inhabit club-room bars, and it shakes one a little to see the familiar vernacular in cold print. *The Flying Shadow* is definitely not a book to leave lying around for Auntie to find.

We are old-fashioned enough to prefer a happy ending, but apart from that have only praise.

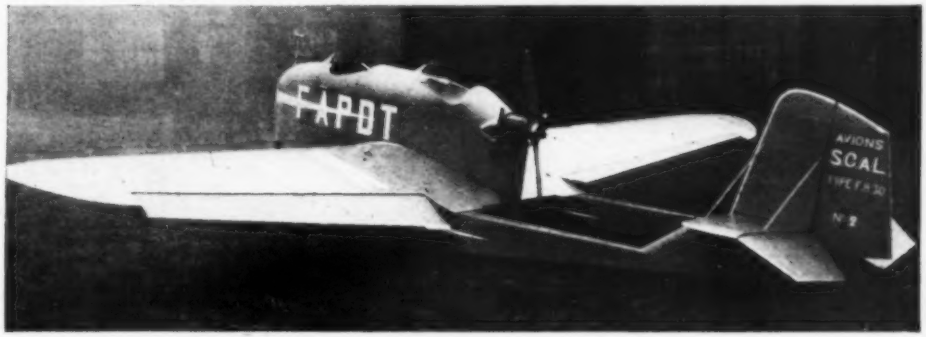
A PUSHER COMES to TOWN

QUITE a number of people in the London district must have been puzzled as to the identity of a small pusher monoplane which was buzzing happily about the sky towards the end of last week.

Actually, it is a new French design, the Bassou F.B.30, which Col. Fitzmaurice has brought over. He flew it from Paris last week in a matter of three hours and at a cost of 10s., this modest sum being accounted for by the fact that the engine is a flat twin of 32 h.p.—the Mengin, a name which will be remembered in connection with the snappy little power unit which M. Mignet employs in his "interceptor" *Pou-du-Ciel*. The cruising speed is claimed to be of the order of 85 m.p.h.

The Bassou, which has tandem seating and dual control, also has some extremely interesting features. The construction is of wood and fabric and box spars form the tail booms. Landing speed, it is said, is reduced to less than 20 m.p.h. by a system in which the ailerons are brought down in unison to act as flaps, lateral control still being obtainable. A three-wheeled undercarriage, with the single wheel projecting well in front, is an outstanding feature. It is hoped to develop a cabin model and also a 60 h.p. machine in the near future.

Col. Fitzmaurice tells us that the French Air Ministry have ordered a large batch for the clubs and he has great expectations for its future if and when it is developed in this country, as is very probable. The licence is held by Makowski and Simon, aeronautical engineers, 56, Kingsway, London, W.C.2. The machine is being cared for by Rollasons'.



Two-up on 32 h.p.! The Bassou pusher monoplane which Col. Fitzmaurice has brought over from France, and which it is hoped will be built in this country. When the machine is on all three wheels of its three-point undercarriage the tail booms are well clear of the ground. (*Flight* photograph)

HANWORTH HOSPITALITIES

(*Continued from page 316.*)

Hill and Clouston, indulged in a scratch race at low altitude over a course of fearsome complication, the last-named eventually winning fairly handsomely.

Mr. Duncanson flew a new and handsome Parnall Heck at both high and incredibly low speeds, Mr. Field Richards obliged with his performing Cub, Mr. Hordern gave his usual charming show with the all-but-silent Heston Phœnix, and Mr. Munday showed the wide range of the Swallow. During the tea interval Mr. Gordon Freeman did a grand spot of crazy flying with Aerial Sites' banner-towing Avro—*without* its usual attachment. Messrs. Seth-Smith and Robert Somerset did contrasting things with the De Luxe and Ambulance monospars, the former machine even being looped.

One most interesting machine present was the little parasol single-seater illustrated on page 316. Known as the Broughton-Blayney, it was described in *Flight* of May 21 under its original designation. Its designer, Mr. F. W. Broughton, has cleaned it up very considerably, and heard quite complimentary remarks about its attractive appearance at such a modest price as £195. Mr. H. J. Wilson would have demonstrated it had the weather not put a stop to the proceedings.

WHO'S WHO in the RACE

Many Famous Pilots to Face the Starter Next Tuesday Morning : South Africa Well Represented : R.A.F. Pilots Competing with Civilians

(Illustrated with "Flight" photographs.)

Two number ones : On the left are Major Miller, who is flying No. 1 Mew Gull in the race, and Capt. E. W. Percival, who has more machines in the race than any other constructor. On the right, Capt. S. S. Halse, who is also piloting a Mew Gull, No. 2.

WHEN Mr. A. G. Reynolds walks out to the starting line at Portsmouth Airport at six o'clock next Tuesday morning he will send off on a strenuous air race some ten or twelve aeroplanes piloted by men whose names have helped to make British aviation history. Many of them will be well-known to readers of FLIGHT *some of them less so. But one and all will carry with them the best wishes of everyone interested in aviation. The following brief notes are intended more as reminders than as extensive biographical sketches of competing pilots, and in order to facilitate reference they have been arranged in the numerical order of the machines.*

NO. 1, a Percival Mew Gull, is to be piloted by MAJOR ALLISTER M MILLER, D.S.O., O.B.E. Major Miller, who is familiarly known to his intimate friends as "Mac," is a South African by birth and has had a distinguished career in aviation, both as a war-time pilot and as founder of Union Airways (Pty.) Ltd., a South African air transport company which did very good work until it was sold, in 1934, to the South African Government and amalgamated with South-West African Airways, Ltd., into South African Airways, now operated under the South African Railways and Harbours Administration.

Mr. Victor Smith will pilot a Miles Sparrow Hawk, No. 3.

No. 2, another Percival Mew Gull, will also be piloted by a South African, CAPTAIN S. S. HALSE, who is chairman and chief instructor of the Johannesburg Aero Club. These two pilots have the very great advantage, in addition to flying very fast machines, of being thoroughly familiar with the African air routes and aerodromes.

No. 3, a Miles Sparrow Hawk, and, like the two Mew Gulls, a single-seater, will have as its pilot another South African, MR. VICTOR SMITH, who has made several flights down through Africa in efforts to beat records. His pluck has hitherto exceeded his luck, and everyone will wish him better fortune this time. He has earned it.

No. 4, a B.A. Double Eagle, starts with a great advantage in having FLT. LT. TOMMY ROSE at the helm. From previous record-breaking flights through Africa "Tommy" knows the route well, and is held by many to stand a good chance. He will be accompanied by MR. JACK BAGSHAW, a young South African pilot.

No. 5, a Percival Vega Gull, appears to be a doubtful starter, as it has not, at the time of writing, been fitted with larger petrol tanks to enable it to cover the long stages. The pilots entered for it are LT. MISRI CHAND, of the Indian Army, and

Flt. Lt. Tommy Rose is, with Mr. Jack Bagshaw, flying a B.A. Double Eagle, No. 4.

Lt. Misri Chand and Lt. P. Randolph (Vega Gull, No. 5) are regarded as doubtful starters.

Mr. C. W. A. Scott, flying Vega Gull No. 6, will have with him as co-pilot Mr. Giles Guthrie.

LT. P. RANDOLPH, of the Grenadier Guards.

No. 6, one of the Percival Vega Gulls, will be piloted by MR. C. W. A. SCOTT, who, with the late Capt. Campbell Black, won the England-Australia race on a De Havilland Comet in 1934. Scott will have with him as co-pilot MR. GILES GUTHRIE, son of Sir Connop Guthrie. Mr. Guthrie has used his Vega Gull a good deal for Continental touring.

Presumably F/O. Clouston will not carry his habitual passenger in the Miles Hawk Six, No. 8.

No. 7, also a Percival Vega Gull, will be flown jointly by F/O. D. W. LLEWELLYN and MR. CHARLES HUGHESDON. Mr. Llewellyn has previously flown over the route, first with Mrs. Wyndham, and more recently, as far as Johannesburg, solo in a little Aeronca, in which he had a good opportunity to familiarise himself with the route.

No. 8, a Miles Hawk Six, will be piloted by F/O. A. E. CLOUSTON, a New Zealander by birth, who is on the Reserve of Air Force Officers and a civil test pilot at the Royal Aircraft Establishment, Farnborough. He is one of the most consistent competitors in air races all over the country.

No. 10, a B.A. Eagle, is very much of a sporting entry. MR. C. G. M. ALINGTON and his brother, PAYMASTER LT. R. H. ALINGTON, R.N., are amateur pilots, and the former is a student at the De Havilland Technical School. In the race they will doubtless spell LT. P. A. BOOTH, R.N., at piloting, and attend to navigation and such duties. Lt. Booth is a Supernumerary instructor at the School of Naval Co-operation at Lee-on-the-Solent, with rank of Flight Lieutenant.

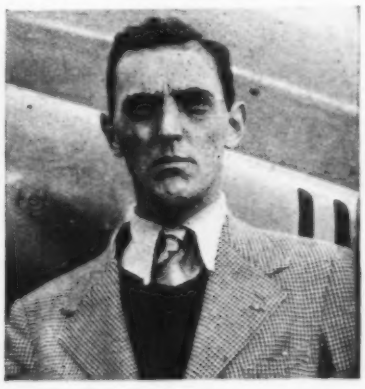
Pilots of Vega Gull No. 7, Mr. D. W. Llewellyn (left) and Mr. Charles Hughesdon.

No. 11, the Miles Peregrine, is held to be a very doubtful starter in the race, as it was completed but recently, and there has been little opportunity for thorough tests. If the machine starts, it will be piloted by FLT. LT. H. R. A. EDWARDS and SQN. LDR. B. S. THYNNE. Flt. Lt. Edwards is a flying instructor of the Oxford University Squadron at Abingdon, and Sqn. Ldr. Thynne is C.O. of No. 601 (County of London) (Fighter) Squadron of the Auxiliary Air Force and a member of the Old Etonian Flying Club.

No. 12, the Percival Vega Gull on which Mrs. Markham recently flew across the Atlantic, is almost certainly a non-starter, as the machine cannot be sent home and repaired in time for the race. It was to have been piloted in the race by MR. JOHN CARBERRY, better known in former days as Lord Carberry.

Flt. Lt. H. R. A. Edwards and Sqn. Ldr. Thynne are entered as pilots of the Miles Peregrine, No. 11, which is regarded as a doubtful starter.

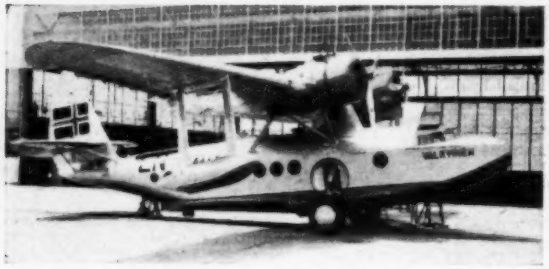
No. 13 in the race is the Airspeed Envoy, to be piloted by MR. MAX H. FINDLAY and MR. KENNETH WALLER, both of whom are flying instructors at the Brooklands School of Flying. "Ken" Waller, it will be remembered, was co-pilot with Lt. Cathcart Jones in the England-Australia race.



Twin-engined: Capt. Max Findlay (left) and Mr. "Ken" Waller will pilot the Airspeed Envoy, No. 13, and will have as members of the crew Mr. A. H. Morgan and Mr. C. D. Peachey.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



OTHER OPERATORS' IDEAS: Two American types which have recently been sold abroad. On the left is the now famous Sikorsky S.43 amphibian, this particular version of which having been sold for work in Norway, where the type should be particularly valuable. On the right is Canadian Airways' latest acquisition, a Lockheed Electra 10.A, which cruises at 190 m.p.h. with ten passengers and freight.

THE WEEK AT CROYDON

Ground Travel Extra : New Wine in an Old Bottle : Hangar Hospitality : The Lorenz Equipment : "Skål"

AS briefly reported in last week's issue, September 14 saw the inauguration of the first regular air link between Dublin and London, operated by Irish Sea Airways, the Anglo-Irish concern of which Capt. Gordon P. Olley is a leading light over here. The service has done well up to date as newly opened services go, for the public is ever slow to take advantage of such enterprise. From the first machine arriving there stepped Gen. O'Duffy, who is said to be organising an Irish "pleasure trip" to Spain, with 2,000 volunteers. When the "Gineral" emerged I rather thought the show had started, for behind him, carefully easing enormous shoulders through the door frame, came two gargantuan figures of battered appearance. They were not a bodyguard, however, but a couple of adventitious all-in wrestlers of American origin, who had been performing in Ireland. Their journey was notable because they took the Imperial midday machine for Paris.

Air Transport Only

A glance at the time-table shows an interesting innovation. Whether it is at Liverpool, Blackpool, the Isle of Man, Belfast, Carlisle, Dublin or Croydon, the company merely points out the best means of transport between city and airport. There are exceptions to the extent of free carriage to the nearest railway station in the company's cars, where conditions are primitive and public transport shockingly inadequate—as, for example, at Croydon, London's premier airport. In principle the idea is sound, for an airport should be the terminus where the air company says farewell to the passenger. It is interesting to speculate on what might have happened if the big air companies had adopted this attitude from the start, thus absolving themselves from much risk, responsibility, financial loss and trouble. Demand, especially when it is ever increasing, produces supply, and by this time ground transport between City and airport might have been in some such hands as those of the London Passenger Transport Board, with a reasonable charge per passenger, payable by that pampered individual himself.

Syrinx, not unlike Jezebel all dolled up and with a new pair of earrings, is due back in service, but is now bedizened with a pair of brand new Pegasus X engines. There is also talk of fresh cabin decorations, suggesting the inner sanctum of a beauty parlour. Seriously, though, the idea of putting new "Pegasus vintage X wine into an old bottle" is the very excellent one of obtaining more operational experience with these admirable engines.

Talking of operational experience, the big-noise captains of a company always tend to fly the big air liners unless something is done about it. Smaller machines of different flying qualities are added to the fleet, and with these the junior pilots are apt to become more familiar than their seniors. Unfamiliar machines are not much liked, so a difference of opinion about the merits of some newer, smaller type may occur. The seniors crab it and the juniors swear by it, and the latter are right. To prevent anything of the sort occurring, Imperial Airways very wisely insist on the seven or eight senior captains taking a trick at the controls of a D.H.86 once a week at least, on the Basle route, for example.

Capt. "Timber" Woods, who has been described as resembling a perky, sunburnt cock-sparrow with an eagle's beak, is a director of Croydon Airways, with which is affiliated the Croydon Flying Club, which already has close on forty members. Every branch of flying is taught, and "Timber" has arranged a comfortable lounge in hangar No. 2 with such unheard-of luxuries as Turkey carpets and really comfortable armchairs. Food and drink are not obtainable there, I understand. Being flying folk, the ground is not good enough for them, even when lounging, and it is understood that the lounge is raised up on stilts as near the roof as possible. Query. Do submarine people build their nests in cellars when ashore?

Capt. "Bill" Lawford, A.F.C., pioneer of air transport, and for very many years a popular figure at this airport, has gone to take charge of Lympne. Gratification at the independent command he has thus obtained will be tinctured in the minds of his many friends by regret that Croydon should lose one of its oldest inhabitants and one of its best-liked and most genial personalities.

Within about a month the new Lorenz equipment should be in working order here. This matter has pursued the usual course. Most practical air-line people wanted Lorenz

from the start, because it is a proven system working regularly elsewhere. For a very long time indeed all sorts of other ideas were tried out, and now Lorenz is to be the system after all.

Last week a number of prominent British travel agents went to Scandinavia, the original home of the Skål Club, "Skål" being the Scandinavian equivalent of "cheerio." The club is composed mainly of travel agents who are especially interested in air and of aviation people especially interested in travel agents being especially interested in the air business. When spoken (or yelled) it sounds like "scald"—a not unnecessary warning, one might suppose, to one about to empty a glass of Swedish schnapps down a tender throat. Anyway, the club has grown into such a success that it held an International Congress from September 17 to 19 in Stockholm, and there are rumours that the Lord Mayor of London has accepted high office with it.

A. VIATOR.

More Shipping Interest

DAVID MACBRAYNE, the well-known Scottish steamer and coach concern, it is reported, are considering the establishment of air services between Glasgow and the Western Isles. An official of the firm has said that plans were being discussed and that an official announcement would be made shortly.

An Iraqi Air Service

THE Iraqi Economic Council has decided to establish an air service company with Iraqi capital. It is intended that the company shall operate an internal service linking up the principal towns of Iraq. There will also be two services operating between Baghdad and points on the Mediterranean coast. The Iraq Government will subscribe 51 per cent. of the share capital of the company, the programme of which will include the opening of a flying school to train commercial pilots. It is intended, if all goes well, to admit twenty students to the school each year.

Perth's Radio

ANOTHER short-range D/F station has been established—this time at Perth airport, which is managed by Airwork for the Perth corporation. The call signs are "GJJ" and "Perth," and the frequencies are 333 kc/s (900 m.) for reception and 336 kc/s (893 m.) for transmission.

On September 10, Railway Air Services made an experimental flight from Renfrew (Glasgow) to Perth, though it is unlikely that a regular service between Renfrew, Perth and Inverness will be started until next year, when the aerodrome at Inverness may be enlarged and equipped with D/F facilities.

And Now Newcastle

A D/F radio station is now in course of erection at Woolsington, Newcastle-upon-Tyne, and night landing equipment is also being installed. Meanwhile, the 75-foot transmitting masts, situated 500 yards north of the eastern boundary, and the aerodrome buildings are fitted with the necessary obstruction lights, though only the latter are in action. Money flares can at present be put out, pending the completion of the floodlighting equipment and hurricane lanterns can be hoisted on the radio masts.

Disposable Load?

AN unusual charge was brought against a joy-ride passenger in Scotland recently. The story sounds rather entertaining in the standard court-report jargon in which we received it, and we therefore give it unabridged and unaltered in that form:

Scots Air Passenger Charged.—An alleged incident in an aeroplane flying over Kirkcaldy was mentioned in an unusual charge brought against a Kirkcaldy barman at Cupar Sheriff Court on Monday. He was James Allison, c/o Moir, 1, Gourlay Street, Kirkcaldy, and he pleaded not guilty to a contravention of the Air Navigation (Consolidation) Order, 1923. Trial was fixed for October 23rd.

The complaint bore that on 25th August while a passenger on an aircraft, registered letters G—ACAD, in the course of a flight over Kirkcaldy, and commencing and terminating at a temporary aerodrome on Chapel Farm, Kirkcaldy, he threw overboard from the aircraft a quantity of paper sheets, which became entangled with the tail plane, controls, rudder cable, and elevators of the aircraft, and imperilled the safety of the aircraft, and of Pauline Mary de Peanly Gower, Sandown Court, Tunbridge Wells, pilot of the aircraft, and David Moir, miner, 1, Gourlay Street, Kirkcaldy, who was then a passenger in the aircraft.

Mr. J. McGregor, Kirkcaldy, appealed as a friend of the prisoner for his release on his own recognisances. The accused, he said, was a resident in Kirkcaldy, and there was no reason to assume that he would not appear for his trial. The Sheriff, however, fixed bail at £5.

Swissair's Winter Schedule

IN *Flight* of September 17, various details were given of Swissair's plans for the coming winter. An unfortunate little error appeared in the second paragraph, where it was stated that from October 5 to December 12 the Zurich service would be operated on week-ends only. This should, obviously, have read "on week-*days* only."

Passengers Across the Pacific

ACCORDING to the *Daily Telegraph*, Pan-American Airways will start a regular passenger service from San Francisco to Manila on Wednesday, October 21. Three Martin boats will be used, and the 8,200-mile trip, with stops at Honolulu, Midway Island, Wake Island and Guam, will be scheduled to take six days. The passengers will spend twenty-four hours in Honolulu on the way.

The Gatwick Accident

THE chief pilot of British Airways, Capt. W. F. Anderson, and two members of the crew were killed last week when a D.H.86 carrying the night mail to Germany crashed soon after taking off from Gatwick airport. Until the inquest has been held and an investigation made, it is impossible to guess at the cause of this disaster, but there appears to be no doubt that the machine turned through 180 degrees immediately after leaving the airport, lost height, and hit a tree. There is no suggestion of mechanical failure, though it is possible that the rudder control was accidentally interfered with at the critical moment after the take-off.

Air France's Winter

THE Air France timetables for the winter have not yet been issued, but the main features may be summarised as follows: Instead of two services to Paris daily, as last winter, there will be three, and the four services of the summer timetable will be restored on March 1, 1937.

The winter services to and from Geneva have been adjusted to connect with winter sports trains to Villar and other resorts. The daily service to Copenhagen is to continue throughout the winter. There has been a deviation from the normal route to Casablanca to avoid passing over the Straits, so that, instead of touching at Tangier after leaving Barcelona, calls are made at Oran and Fez.

TELLING CANADA: An impression of part of Imperial Airways' special show at the Canadian National Exhibition at Toronto. Canadian Airways, of course, participated with a certain amount of material.

Commercial Aviation

TOWARDS AN IDEAL

An Unorthodox Pusher Monoplane Nearing Completion

The Sykes monoplane in a partially completed state. Note the dihedral on the tailplane; it is the designer's intention to dispense with the rudder.

READERS may recall that in "Flight" of October 17, 1935, under the heading "Is this the Private Owner's Ideal," there appeared a description and general arrangement drawing of a pusher monoplane designed by Mr. Norman Sykes. Mr. Sykes has since proceeded with the construction of the machine, and in the notes below gives further opinions on its possibilities. At the time of our original description the Editor made several criticisms, and certain of them are answered here by the designer.

THE illustrations show the partial materialisation of the design. The drawing, stressing and actual construction have been easy, due to the simple principles employed throughout the design.

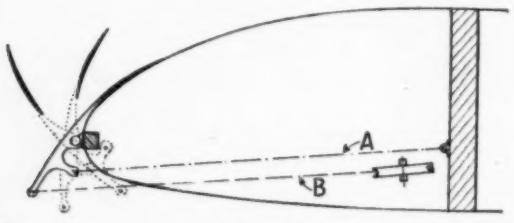
In the production of a cheap aircraft the present enormous overhead expenses of drawing, stress and inspection departments, must be drastically cut by dividing the design into simple self-complete units suitable for modern mass-production. The simple chassis and interchangeable tail planes are typical examples in this design. Also, all aerofoils have a single spar at the deepest part (.3c), the torsion, drag and high loading near the nose being taken by a substantial wing covering between the spar and leading edge.

The lightly loaded portion of wing behind the spar will be fabric-covered. This results in a wing virtually "mass-balanced" about the flexural axes, consequently reducing the risk of wing flutter without using heavy wing-stiffening (because Bleriot flew the Channel on two-spar wings that need not be the end of development).

To complete the immunity from flutter, the aileron design needs revision; again, because the Wright Brothers warped the trailing edge that need not be the best way of producing a rolling moment.

It is proposed to try out the method shown in the sketch, the scheme being to operate only on the down-going wing by opening a "spoiler" hinged near the leading edge. This reduces the lift and adds drag, and it is hoped thereby to eliminate the rudder, giving a much needed simplification of control.

Spoilers placed well forward on an aerofoil suffer from a short time lag between operation and effect. The spoiler has, therefore, been designed as a reversed "slot" in an attempt to rectify this fault. It will be noted that the weight of this control and its gear is helping to mass-balance the wing.



The "spoiler" referred to by Mr. Sykes. Three positions are shown. "A" represents a compression spring and "B" the operating cable.

This type of control should be very effective in recovery from a spin when fully opened on the "outside" wing.

It may be argued that such a control cannot be used for side-slipping, but the provision of adequate air-brakes will abolish the need for this distressing manœuvre. Sufficient directional trim for landing and compass flying is afforded by the steerable tail-wheel, which acts as a small rudder.

The actual making of this aircraft has suggested many additional desirable features, e.g., the fuel tanks are in the wing, and shoulders and vertical slots cut in the adjacent cabin sides allow a "boiler gauge" on each tank to be visible from the pilot's seat, thus solving very simply an often awkward problem.

Again, in the bulkhead behind the rear seat is a large triangular door giving easy access to the engine from the cabin. Thus, if cruising at 5,000 ft. and engine failure occurs, the twelve minutes available before forced landing can be spent in examining ignition and fuel systems with a chance of rectifying the trouble. (Tools are kept under the pilot's seat and the engine is actuated by kick-starter from the seat.)

General Impressions

In this design the chief criticism appears to be the sudden change of body section under the airscrew, which suggests a structural weakness. This, of course, is only an optical impression. The box-section chosen is better for run of controls, and is simpler, stronger and better-looking than a pair of outriggers from the wing. The box will also shield some airscrew noise from the luckless public below (who will eventually have to be considered), and will protect the airscrew from spray in the seaplane version.

The Editor previously queried the low tare weight claimed for this design, but the actual weights are confirming that estimate. There is bound to be weight-saving when the engine is only 18 in. from the c.g. This position of the engine will be of great benefit in the future when the refinements of free-wheel clutches, superchargers, etc., are demanded.

An ideal engine for this aircraft is needed, preferably having four cylinders of high r.p.m., and air- or water-cooled. There is ample accommodation in the engine-room for a flash-boiler and direct drive steam-engine (U.S.A., please note).

The addition of about 6 in. to the width would create an ideal "foursome" cabin with seats and doors similar to those of an automobile. There is no reason why the chassis should not be made four-wheeled or the present tail-wheel brought forward, just to the rear of the engine, in anticipation of a "roadable" model.

Finally, there seems to be great scope for the plastics industry in perfecting a reinforced material for cabins, tail-components, etc., and a finely corrugated sheeting or moulding for leading-edge coverings to replace smooth ply. This would eliminate the "tension diagonal fields" under torsion loading and result in a stiffer structure.

"The Aircraft Engineer"

AS announced last week, *The Aircraft Engineer* supplement to *Flight* is held over until next week's issue, October 1, owing to the pressure on space caused by the Johannesburg Race features in this issue.